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INDI

The PHOTOFACT Servicer

MARCH 1, 1948 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 4, No. 35

ROBERT M. ELLIS, *Editor*

NEW PARTICIPATING MANUFACTURER

Radio service technicians will welcome the news that beginning with this issue, replacement batteries made by the Burgess Battery Company, Freeport, Illinois, will be listed in the "Replacement Data" Columns of PHOTOFACT Folders.

No company is permitted to participate in our program without meeting requirements which include integrity, and facilities for national distribution. In addition, to be a participant, a company must actually manufacture the product, and have full control over its quality. The manufacturers who are listed in PHOTOFACT Folders are truly the "400" of the radio industry.

★ ★

SIMPLIFIED NUMBERING SYSTEM

Inaugurated in this issue is a new numbering system which will provide added speed and convenience in making "look-ups" on PHOTOFACT Folders, especially when they are filed by the "30-second" method.

Look at the bottom of any of the Folders in this issue. You will find something like this—

3/48—No. 485-1 Set No. 35—Folder No. 1

Forthcoming Cumulative Indexes will show the "Set" number and the "Folder" number for each listing. If your indext says Set No. 35—Folder No. 1, that's all you have to look for. Simple—isn't it?

The dating (3/48 in the example listed above) and the PHOTOFACT Number will also be printed on the bottom of the Folder for identification purposes and for our convenience in scheduling receivers in the laboratory "dis-assembly" production line.

The change is made in response to the requests we have had from our patrons. At the risk of being unduly repetitious, we restate our policy—we are anxious to incorporate in PHOTOFACT Folders every worth-while improvement that is economically practical. Please continue to let us have your suggestions.

★ ★

ASSOCIATION NEWS

Radio service associations are cordially invited to submit news of their activities for publication in the SERVICER. Please keep your copy reasonably brief and confined to information of general interest to the service fraternity. You don't have to do a fancy job of writing—we will edit your copy for you. Here is the opportunity to carry the message of your organization to service technicians all over the country. Take advantage of it!

★ ★

PRICE CORRECTION

Mr. M. W. Tilden, Supervisor of Service Publications, RCA Service Company, Inc., of Camden, New Jersey, calls our attention to an error in PHOTOFACT SERVICER No. 25. The publication "Practical Television by RCA" is priced at 25c net, not $2.25 as given in our bibliography.

★ ★

PLEASE IDENTIFY YOUR MEMBERSHIP

Membership in the Howard W. Sams Institute is a valuable possession, and it is gained through the regular purchase of PHOTOFACT Folders and in no other way. To avail yourself of Institute privileges, be sure to mention that you are such a purchaser. Such a mention makes a whale of a big difference in the way your letters are handled.

Our Institute has been expensive to maintain. In addition, through our Clinic we are engaged in the analysis of test equipment and test procedure; and with the advent of FM and television it is hard to think of anything which would be of more importance to the service profession at this time. However, none of these activities provide us with a direct financial return.

We believe it is of importance to you that the Clinic and the Institute activities be continued—expanded if possible. Frankly, we cannot do this unless we limit Institute service to those legitimately entitled to it.

Accordingly, we are repeating the request that we made in SERVICER No. 18. When you write for technical information, or for help on a service problem, please mention that you are a member of the Institute and purchase PHOTOFACT Folders regularly. This will identify you and we will do our utmost to help you.

Technicians who are just starting the purchase of PHOTOFACT Folders should request enrollment in the Institute. This will bring you the valuable Institute mailing without charge. Releases of other special data for Institute Members will be included either as a part of the SERVICER or as a Folder in the PHOTOFACT Set. We believe this statement of policy also will answer those who have asked, "I haven't heard from you for some time now. Am I still on your mailing list?"

Service technicians who visit our establishment tell us that they are amazed at the things we are actually doing for the benefit of the service profession. We are here to aid you.

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Company, Inc.

★ ★

FAILURE OF ANTENNA TRIMMER TO PEAK

"When you encounter a condition of high signal to noise ratio and the antenna loop trimmer will not peak, look for shorted turns on the loop—especially those with *plastic covered* wire. Don't depend on the ohmmeter or visual check. If seemingly pressed too much, dig apart and insulate; or else replace the loop."

Submitted by: Mr. Fritz Hoffman, Radio Doctor, 309 Harrison Street, Kewaunee, Wisconsin

★ ★

DETROLA 571
Photofact 4610-16, Set 10

"Complaint: Distortion and hum, appearing only when the set was tuned to a strong local station.

I found the tuning condenser mounting was shorted through its insulator, thus shorting out the a.v.c., and causing non-linear operation of the r.f. stages on strong stations.

★

SETCHELL-CARLSON 416
Photofact 462-14, Set 2

"Complaint: Microphonics and oscillation when the volume is turned up.

The power leads pass through the same hole in the chassis as the output transformer leads, and then pass close to the 50L6GT grid, causing feedback. Part of the feedback is through the a.v.c., which is critical because of the 5 megohm a.v.c. filter resistor. Reversing and redressing the power leads, and realigning the set will eliminate this trouble. A rattle on loud notes may be caused by a slightly loose celluloid dial shield. The remedy is to recement it."

Submitted by: Mr. Sterling K. Berberian, Sterling's Radio & Television Service, 344 Albert Street, Lansing, Michigan

★ ★

DATING TUBE STOCK

"We code each tube carton before it is put in stock with a number designating the month of the year. This method enables us to always use the older tubes first, thereby keeping fresh stock on our shelves and practically eliminating the stocking of tubes whose warranty time has run out. If you inventory a quantity of tubes such as we do and find it necessary to carry tubes over from one year to the next, especially the slow movers, all that is needed is to use a different color stamp pad for the marking process each year."

Submitted by: Mr. Carl Morris, Morris Radio and Applicance Co., Chillicothe, Ohio.

MODEL 6B40 RECORDIO (or similar unit) using General Industries Recorder and Record Changer Model RC130
Photofact 4712-33, Set 22

"Complaint: Hums when on 'phonograph' and in twelve-inch or 'manual' position only. Perfect in ten-inch position.

Cause: The shielding on the crystal cartridge lead may be broken or unsoldered. The motor frame is mounted on the phono chassis with rubber grommets and is grounded to the radio chassis but not to the phonograph chassis. The shielded phonograph lead is grounded to radio chassis at plug and to the phonograph chassis through the crystal cartridge in the pickup arm. In the ten-inch position the offset in the 'Main 10" and 12" shift lever assembly,' PHOTOFACT Ref. 53, bears against the motor frame to effectively complete the ground circuit. This explains the fact that the machine functions perfectly in the 10-inch record playing position.

Remedy: Repair shielding. To completely eliminate this trouble or its reoccurrence it would also be a good idea to ground the motor frame to the changer chassis as an addition to the existing ground to the radio chassis."

★

RECORDIO—ALL MODELS

"A quick check on the condition of the crystal cutter can be made as follows: (1) Remove the phono plug from its socket and insert the cutter plug. They are identical and will interchange without difficulty. (2) Put a 'Playback' phono needle in crystal cutting head. (3) Turn instrument on and put it in operation for phonograph playing. (4) With a record on the turntable lower the cutting head on to the record. The volume and quality should be almost the same as in the ordinary playback position, with the exception of jumping an occasional groove if commercial recordings are used.

Weak or bad crystal cutters show up in this manner. This procedure has saved us many hours of needless disassembly, required before we adopted this method."

★

FILING "FIELD EXPERIENCES"

"We paste 'Field Experiences' on a blank sheet of paper and file it in front of the set or sets to which it pertains. This way when we need it, we've got it."

Submitted by: Mr. Bert M. Bernheim, Bernheim Brothers, 208 Jackson Street, Monroe, Louisiana

★ ★

MILWAUKEE-ERWOOD 10700 SERIES RECORD CHANGER
Photofact 476-37, Set 16

"Here is a helpful suggestion you may like to pass along to the other servicemen who are bothered with the Milwaukee-Erwood 10700 Series Record Changers failing to complete a record before changing. This condition is brought about through no fault of the changer, but because the records are not perfectly centered. Premature tripping can be corrected by removing the following parts of the trip mechanism—ratchet dog, PHOTOFACT Item No. 59, and ratchet extension spring, PHOTOFACT Item No. 60. This will in no way interfere with the operation of the changer as proper adjustment of ejector adjustment screw, PHOTOFACT Item 47, will still make the changer operate properly. With this change, the pickup must play the entire record before it can change, as changing action does not take place until the needle starts into the eccentric groove."

Submitted by: Mr. J. S. Ford, City Appliance Company, Bay Springs, Mississippi

★ ★

GAROD 5D, 5D-2
Photofact 472-12, Set 12

"In servicing a Garod Portable Model 5D-2, I found this fault which may be of interest to fellow servicemen. The customer had installed a new B battery in this set and after the installation the radio was dead on both battery and light socket operation.

I found that the battery was a very tight fit and had to be inserted with pressure. This had warped the chassis and caused the ground lead on the volume control on-off switch to break loose from its soldered connection to the chassis. This connection was made at the factory by looping the pig tail end of PHOTOACT Item No. 18 (a .0001 mfd. mica condenser) to ground and thence with the same wire to the appropriate terminal of the on-off switch.

This chassis ground was very inaccessible for resoldering, so I made the repair by running a new wire from the on-off switch to a more accessible chassis ground point."

Submitted by: Mr. E. J. Challans, Challans Service Radio & Appliances, 330 Apple Orchard, Springfield, Illinois

FARNSWORTH GK-100 THROUGH GK-104
Photofact 4713-8, Set 23

"Complaint: No reception, or intermittent reception on AM band only.

We found the 4 mmf. ceramic condenser, PHOTOFACT Item No. 33, across AM band i.f. primary and secondary, was leaking. This puts a varying positive voltage on diode Pin No. 5 of 6SF7 tube instead of minus .3 volts."

Submitted by: Mr. O. J. Kunkle, Braker & Kunkle, 7566 Verree Road, Philadelphia, Pennsylvania

★ ★

GENERAL ELECTRIC 417
Photofact 476-15, Set 16

"Complaint: Will play on manual but not on push-button.

Try replacing the 6AK5 oscillator tube even though it checks good. I have noticed this condition in three different sets."

Submitted by: Mr. L. G. Mull, Wagner Music and Appliance, 309 Broad Street, Elyria, Ohio

★ ★

HOFFMAN A-200
Photofact 464-23, Set 4

"New Hoffman A-200 comes in shop dead.

If a signal is checked to the grid of the 12SG7 but none can be found in the plate circuit, turn the trimmer A2 in the primary of the second i.f. transformer, and the set may play. If so, the thin piece of mica between the two plates of this trimmer has shorted. The remedy is to replace the mica and realign. I have found this in six sets to date."

Submitted by: Mr. Leslie M. Scofield, Modern Home Appliances, 15848 Hesperian Blvd., San Lorenzo, California

★ ★

R.C.A. 612V1, CHASSIS RK-121 WITH RS-123
Photofact 477-27, Set 17

"Noisy on phonograph with the volume control turned off. Check the second i.f. transformer, PHOTOFACT Item No. 152, as the input of the phonograph goes through it. There is a 180 mmf. condenser inside the shield which can cause the trouble."

"Low volume and distortion.

Try replacing the 6F6 tubes; also, check condensers, PHOTOFACT Items 20 and 21, for leakage."

Submitted by: Mr. R. P. Fieldman, 2108 South Gould Street, Philadelphia 42, Pa.

★ ★

ZENITH 4K035, CHASSIS 4C52
Photofact 466-40, Set 6

"Complaint: Severe distortion on strong signals.

Signal tracing showed a satisfactory signal on the grid of the 1H5 but bad distortion at plate of this tube. Both the audio coupling condenser of the stage and the grid and plate resistors checked o.k. Symptoms pointed to a.v.c. trouble. There was a strong a.v.c. voltage at high side of volume control but none at grids of controlled tubes. The a.v.c. filters and resistors checked o.k.

Cause of trouble: A leaky grid connection in the 1N5 tube bled off a.v.c. when this tube was heated. Replacement of the tube cured the trouble.

Incidentally, later runs of this model used a 3Q5 rather than 1C5 as shown in the PHOTOFACT Folder. Also the output i.f. transformer has been changed to one which has a 47K resistor in the can and five leads from the transformer."

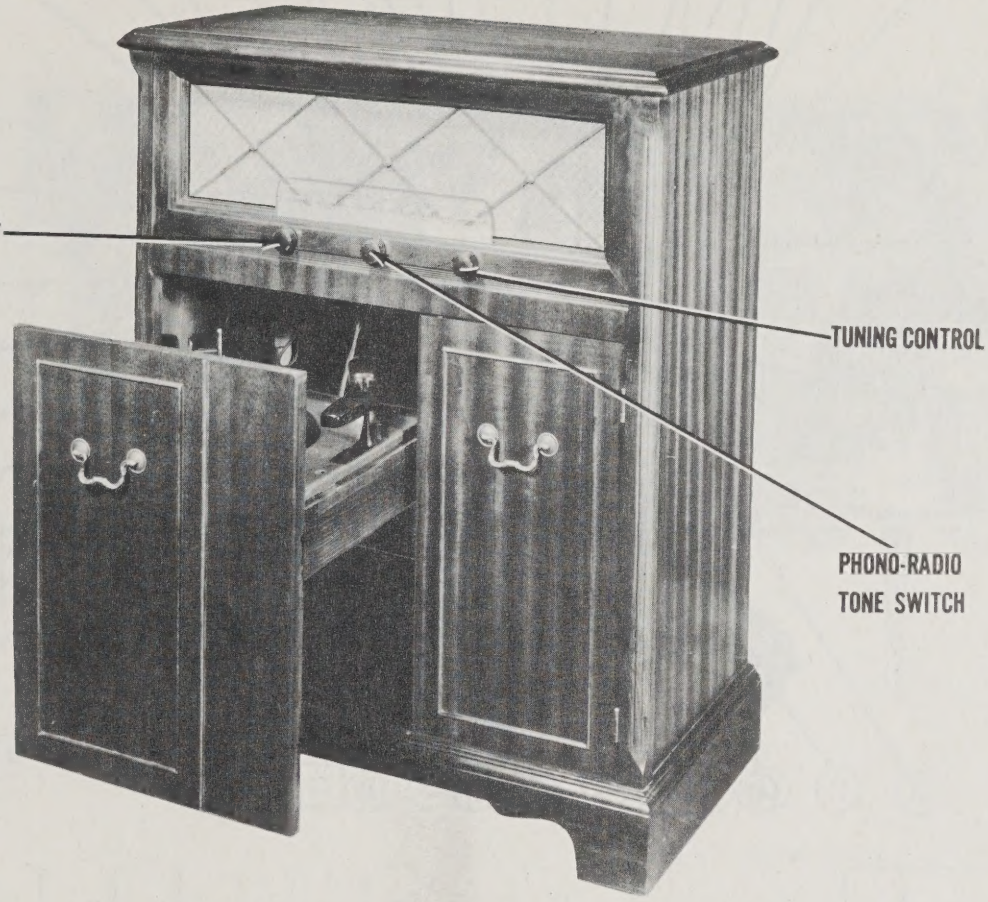
Submitted by: Mr. W. M. McDonald, Abrams McDonald Home and Auto Store, Dadeville, Alabama

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Volume 4—Set No. 36 ..... **March 20**
Volume 4—Set No. 37 ..... **April 16**
Volume 4—Set No. 38 ..... **April 16**
Volume 4—Set No. 39 ..... **May 15**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*



AIRLINE MODEL
74KR2706B

AIRLINE MODEL
74KR2706B

AIRLINE MODEL 74KR2706B

TRADE NAME	Airline, Model 74KR2706B
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .5 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	200MMFD	High side to ext. ant. clip. Low side to chassis.	1620KC	"	"	A5	" " " "
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7	Adjust for maximum output. With receiver reinstalled in cabinet adjust pointer to 1400KC reference mark.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1948 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 3/48-#485-1 SET #35-FOLDER #485-1

PARTS LIST AND DESCRIPTIONS

AIRLINE MODEL 74KR2706B

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	15	450	25688	DY-312	EL-353	AF44J4A	UP2245C	▲ Filter
B	15	450						■ "
C	20	25						Cathode Bypass
8	.005	600	25689	MPH-6-005	TC-25	684-005	DT6D5	Line Filter
9	.005	600	25689	MPH-6-005	TC-25	684-005	DT6D5	" "
10	.05	600	8878	S-6-05	TC-15	684-05	DT6S5	Audio Coupling
11	.005	600	25689	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
12	.005	600	25689	S-6-005	TC-25	684-005	DT6D5	" "
13	.005	600	25689	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
14	.05	200	8661	S-4-05	TC-15	484-05	DT2S5	" "
15	.1	400		S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
16	.05	200	8661	S-4-05	TC-15	484-05	DT2S5	IF Cathode Bypass
17	.05	200	8661	S-4-05	TC-15	484-05	DT2S5	AVC Filter
18	.05	200	8661	S-4-05	TC-15	484-05	DT2S5	" "
19	.05	200	8661	S-4-05	TC-15	484-05	DT2S5	" "
20	.01	400	8583	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Coupling
21	200	500	14370	MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass
22	70	500	25964	MOS.5-47	MS-47	1469-00007	5W5Q7	Tone Comp.
23	100	500	8872	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.

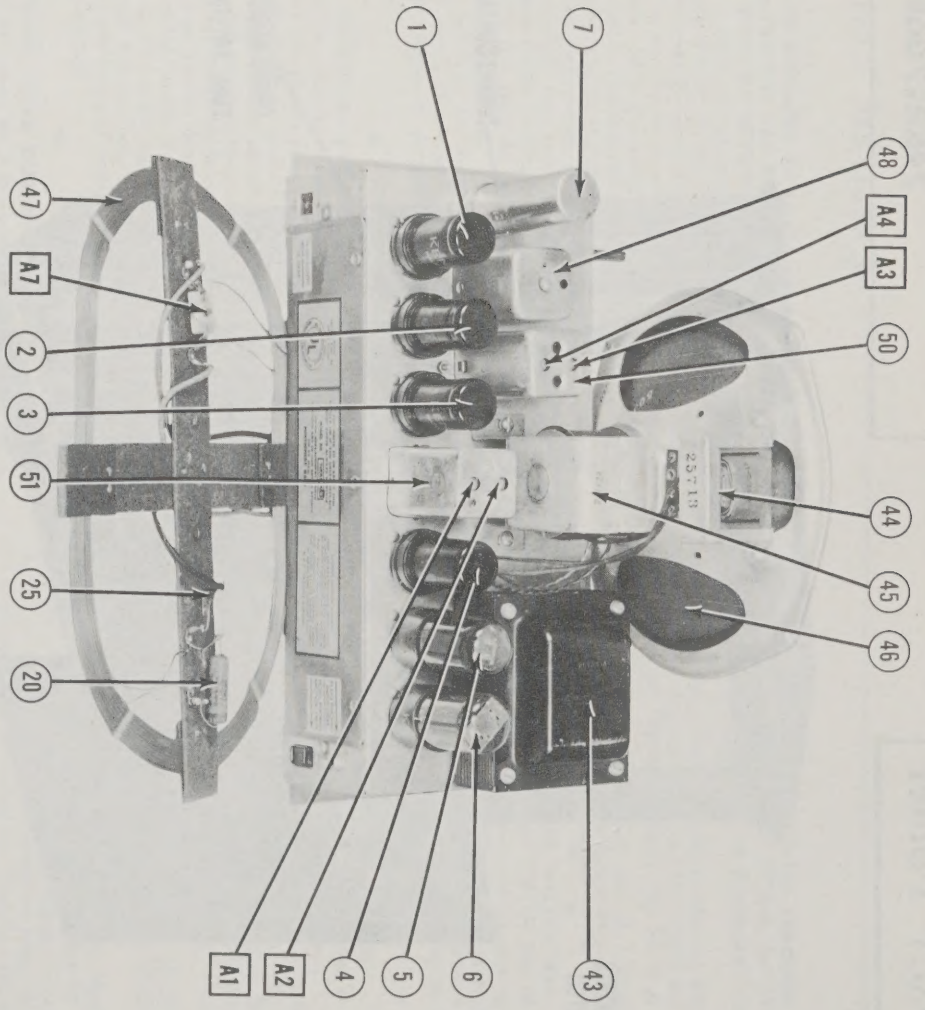
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	2.2 Meg.	½	25690	D13-139X	T-115	Volume Control tapped @ 500KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
25	1000Ω	½	25414	BTS-1000	Br.-Blk.-Red Antenna Loading
26	100KΩ	½	8885	BTS-100K	Br.-Blk.-Yl. AVC Network
27	470Ω	½	25085	BTS-470	Yl.-Vi.-Br. RF Cathode
28	100KΩ	½	8885	BTS-100K	Br.-Blk.-Yl. AVC Network
29	22KΩ	½	25038	BTS-22K	Red-Red-Or. Oscillator Grid
30	470Ω	½	25085	BTS-470	Yl.-Vi.-Br. IF Cathode
31	22KΩ	2	25721	BT-2-22K	Red-Red-Or. Screen Dropping
32	1 Meg.	½	8766	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
33	33KΩ	½	25144	BTS-33K	Or.-Or.-Or. Tone Compensation
34	22KΩ	½	25038	BTS-22K	Red-Red-Or. " "
35	2.2 Meg.	½	25134	BTS-2.2 Meg.	Red-Red-Grn. " "
36	470KΩ	½	25042	BTS-470K	Yl.-Vi.-Yl. Diode Load
37	15 Meg.	½	14365	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
38	220KΩ	½	25041	BTS-220K	Red-Red-Yl. AF Plate Load
39	220KΩ	½	25041	BTS-220K	Red-Red-Yl. Output Grid
40	330Ω	2	25742	BW-2-330	Or.-Or.-Br. Output Cathode
41	1 Meg.	½	8766	BTS-1 Meg.	Br.-Blk.-Grn. Feedback
42	3.6Ω	½	25836	BW-½-3.3	Or.-Blue-Gold Series Pilot Light

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
43	117V AC @ .5A	620V CT @ .062A	5.1V AC @ 2.0A	6.4V AC @ 2.0A	25723	P-6120*	T22R02*	P-2951*

*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
44	3300Ω	3.3Ω	240Ω	.25Ω	25713	A-3823	T22S46	A-2902	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD RES.	VC IMP.		ST-736†		
45	800Ω	3.3Ω	25712	Mod. F8-W	8E10†	†Shunt field with 4000Ω 2 watt resistor, drill and tap magnet frame.
	CONE DIA.	VC DIA.				
46	7-3/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

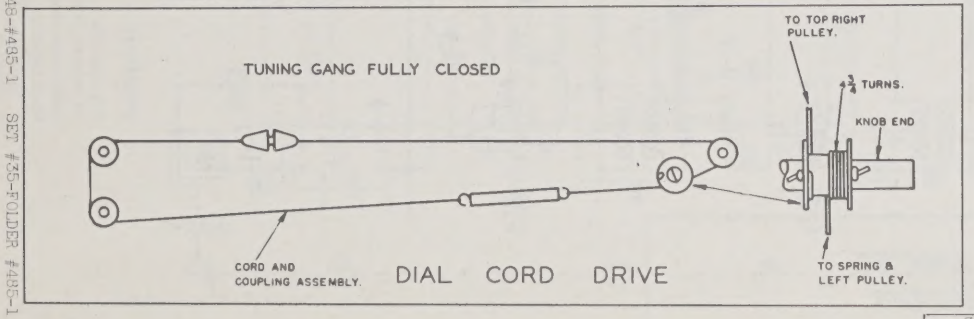
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.
47	Loop Ant.	.1Ω	1Ω	25965	
48	RF Coil	72Ω	6Ω	25597	14-7558
49	Osc. Coil		6Ω	25724	14-1040
50	Input IF	28.8Ω	28.5Ω	25715	16-6658
51	Output IF	32Ω		25714	16-6670

DIAL LIGHT

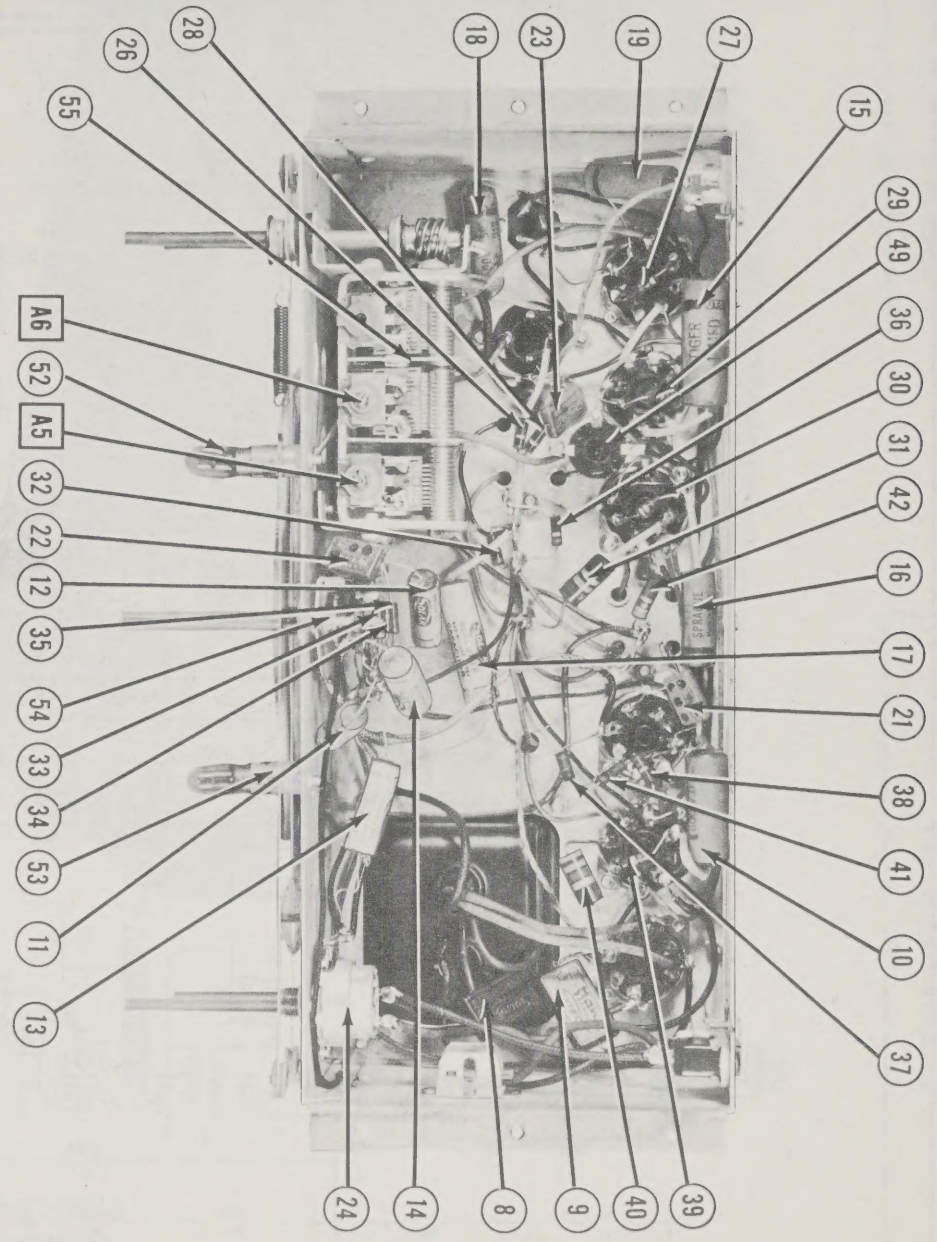
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
52	Bayonet	6-8	0.15	Brown			Type 47
53	"	6-8	0.15	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
54	Switch	25562	Radio-Phono-Tone
55	3 Gang Var. Cap.	25592	(31-427MMF, 31-427MMF, 38-200MMF)
	Dial Scale	25947	Plastic
	Dial Pointer	25578	

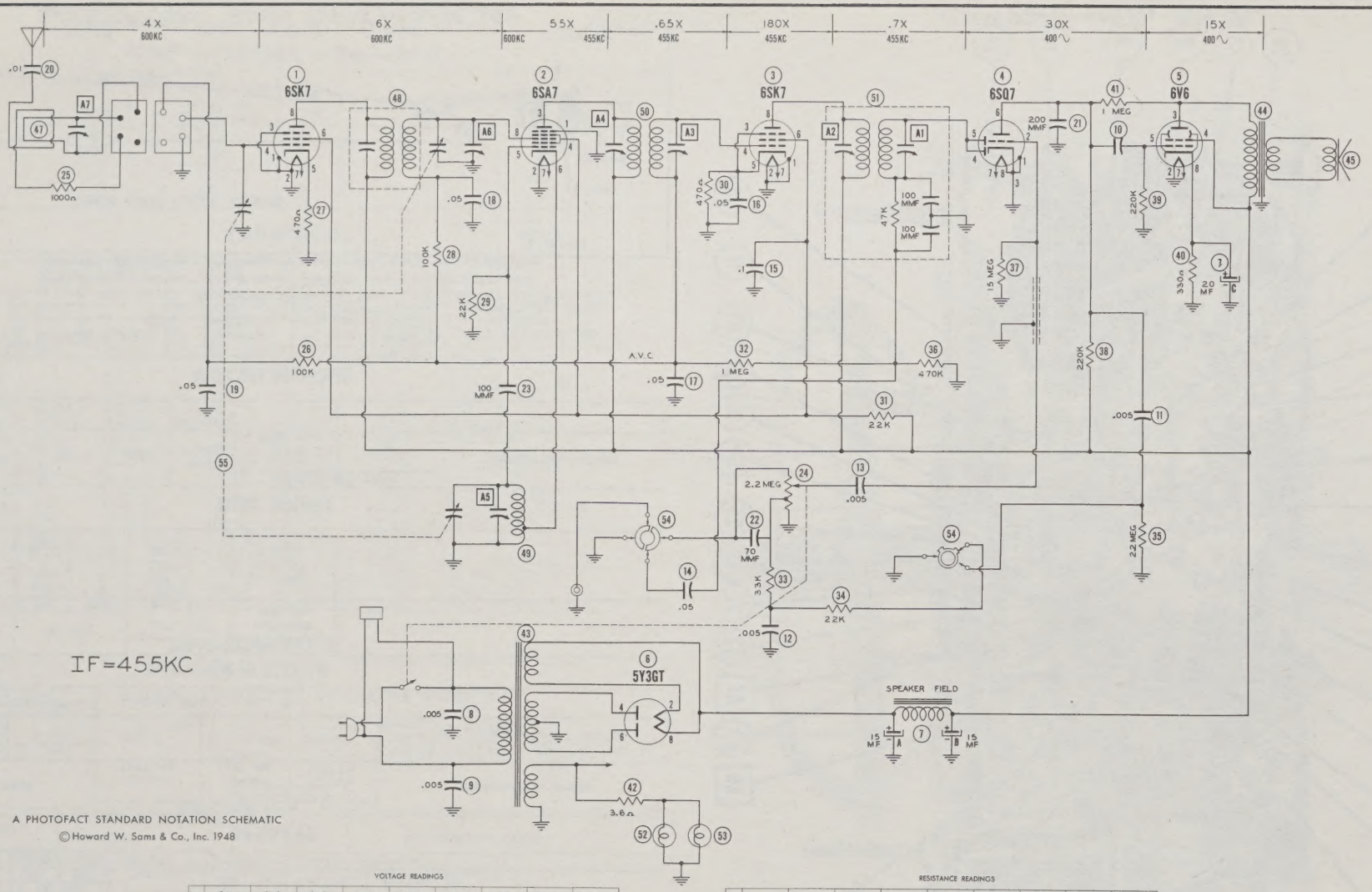


CHASSIS—BOTTOM VIEW



DATE 5/48-#435-1 SET #35-FOLDER #485-1

AIRLINE MODEL 74KR2706B



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	-.2VDC	2.5VDC	75VDC	6.4VDC	270VDC
2	6SA7	0V.	0V.	270VDC	75VDC	-6VDC§	0V.	6.4VAC	-.4VDC
3	6SK7	0V.	0V.	1.7VDC	-.4VDC	1.7VDC	75VDC	6.4VAC	270VDC
4	6SQ7	0V.	-.4VDC	0V.	-.5VDC	-.5VDC	145VDC	6.4VAC	0V.
5	6V6GT	0V.	0V.	260VDC	270VDC	0V.	0V.	6.4VAC	14VDC
6	5Y3GT	0V.	330VDC	0V.	310VAC	0V.	310VAC	0V.	330VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	1.6 Meg.	470Ω	820KΩ	.1Ω	800KΩ
2	6SA7	0Ω	0Ω	800KΩ	820KΩ	22KΩ	.6Ω	.1Ω	1.6 Meg.
3	6SK7	0Ω	0Ω	500Ω	1.5 Meg.	500Ω	820KΩ	.1Ω	800KΩ
4	6SQ7	0Ω	15 Meg.	0Ω	540KΩ	540KΩ	1 Meg.	.1Ω	0Ω
5	6V6GT	0Ω	0Ω	800KΩ	800KΩ	220KΩ	INF.	.1Ω	330Ω
6	5Y3GT	INF.	800KΩ	INF.	165Ω	INF.	175Ω	INF.	800KΩ

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
§TAKEN WITH VACUUM TUBE VOLTMETER.

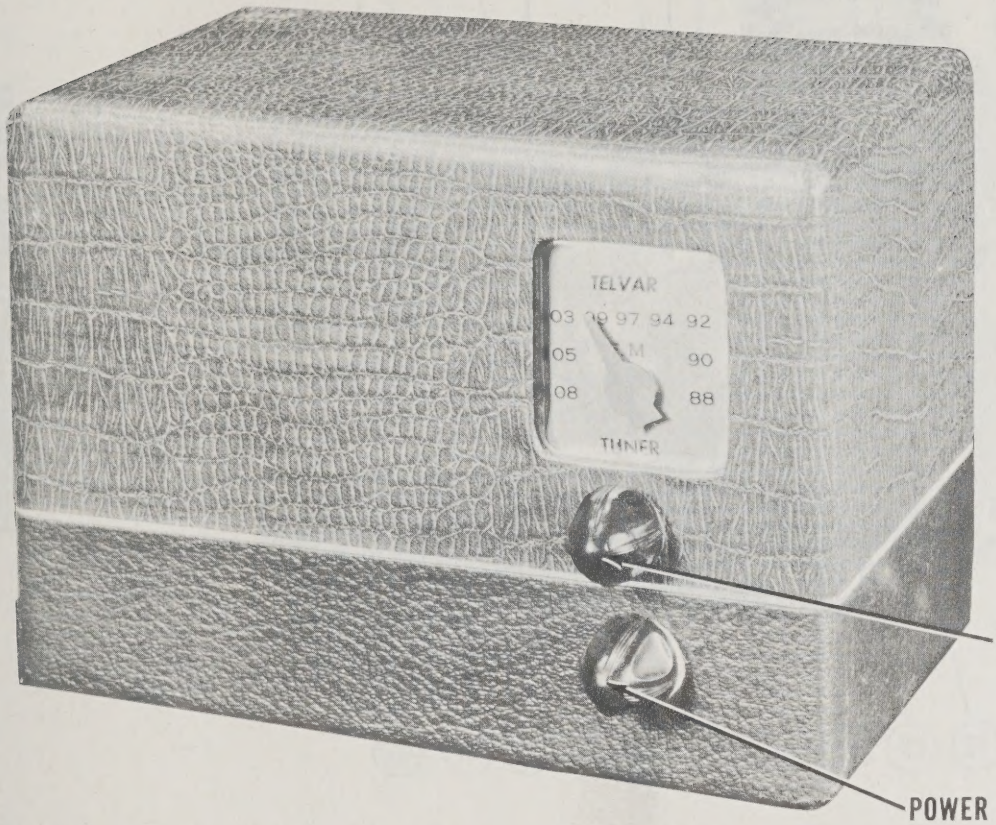
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

485-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AUDAR MODEL
(TELVAR) FMC-12



AUDAR MODEL
(TELVAR) FMC-12

AUDAR MODEL (TELVAR) FMC-12

TRADE NAME	Audar, Model (Telvar) FMC-12
MANUFACTURER	Audar Inc., Argus, Indiana
TYPE SET	AC-DC Operated FM Tuner
TUBES (TWO)	Types, 14F8 FM Osc.-Det.-IF, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—FREQ. MOD.	88-108MC RATING .16 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to Pin 1 (grid) 14F8. Low side to chassis.	23.25MC	Tuning cap. fully open.	Across audio output plug.	A1	Adjust for maximum output.
2	300Ω carbon res.	High side to ant. terminal "2". Low side to terminal "1".	105MC	105MC	"	A2	" " " "
3	"	"	"	Tune for maximum output.	"	A3	Rock tuning cap. and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

AUDAR MODEL (TELVAR) FMC-12

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AUDAR PART No.	STANDARD REPLACEMENT		
1	FM Osc.-Det.-IF	14F8	14F8		
2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AUDAR PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
3A	50	150	CL-10007	DSB-5030-150	TA-530	PRSA150-30-50	EDL5315	Filter - Red
B	30	150						" - Blue
4	10	25	CL-10011	M-10-25	TA-10	PRS25-10	BR102A	Stabilizing Capacitor
5	.01	200	CP-12103	S-4-01	TC-11	484-01	DT2S1	Rectifier Bypass
6	.0025	600	CP-12522	S-6-003	TC-23	684-003	DT6D3	Quench Network
7	.005	600	CP-12502	S-6-005	TC-25	684-005	DT6D5	RF Bypass
8	.001	600		S-6-001	TC-21	684-001	DT6D1	" "
9	30	500	CC-15300	MOS.5-43	MS-43		5R5Q3	Regenerative Feedback-Cer.
10	30	500	CC-15300	MOS.5-43	MS-43		5R5Q3	" " "
11	2	500	CC-1520					Ant. Coupling-Cer.
12	500	500	CC-15501	MOS.5-35	MS-35	1469-0005	5R5T5	" " "
13	2	500	CC-15300					Osc. Coupling - Cer.
14	500	500	CC-15501	MOS.5-35	MS-35	1469-0005	5R5T5	Osc. Feedback-Cer.
15	20	500	CC-15200	MOS.5-42	MS-42		5R5Q2	Osc. Grid Cap.-Cer.
16	500	500	CC-15501	MOS.5-35	MS-35	1469-0005	5R5T5	RF Bypass-Cer.
17	500	500	CC-15501	MOS.5-35	MS-35	1469-0005	5R5T5	Line Ant. Coupling-Cer.

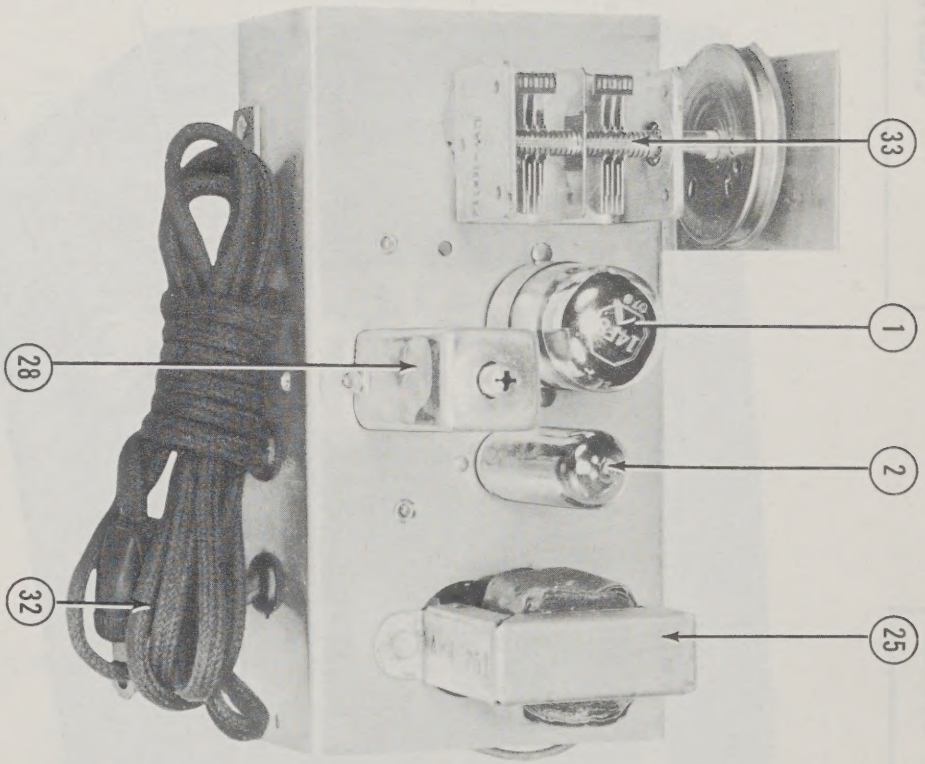
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AUDAR PART No.	IRC PART No.	
18	22KΩ	½	RC-22202	BTS-22K	Red-Red-Or. Oscillator Grid
19	100Ω	½	RC-21000	BW-½-100	Br.-Blk.-Br. Oscillator Decoupling
20	1500Ω	½	RC-21501	BTS-1500	Br.-Grn.-Red Quench Network
21	68KΩ	½	RC-26802	BTS-68K	Blue-Gray-Or. IF Transformer Shunt
22	150KΩ	½	RC-21503	BTS-150K	Br.-Grn.-Yl. Voltage Dropping
23	2000Ω	½	RC-22001	BTS-2200	Red-Blk.-Red Filter
24	1000Ω	½	RC-21001	BTS-1000	Br.-Blk.-Red "

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.		AUDAR PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI. to SEC.	PRI.	SEC.					
25	1.6 to 1	920Ω	330Ω	TO-10009	A-62-C	T20A16#		#Reverse normal primary and secondary connections.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

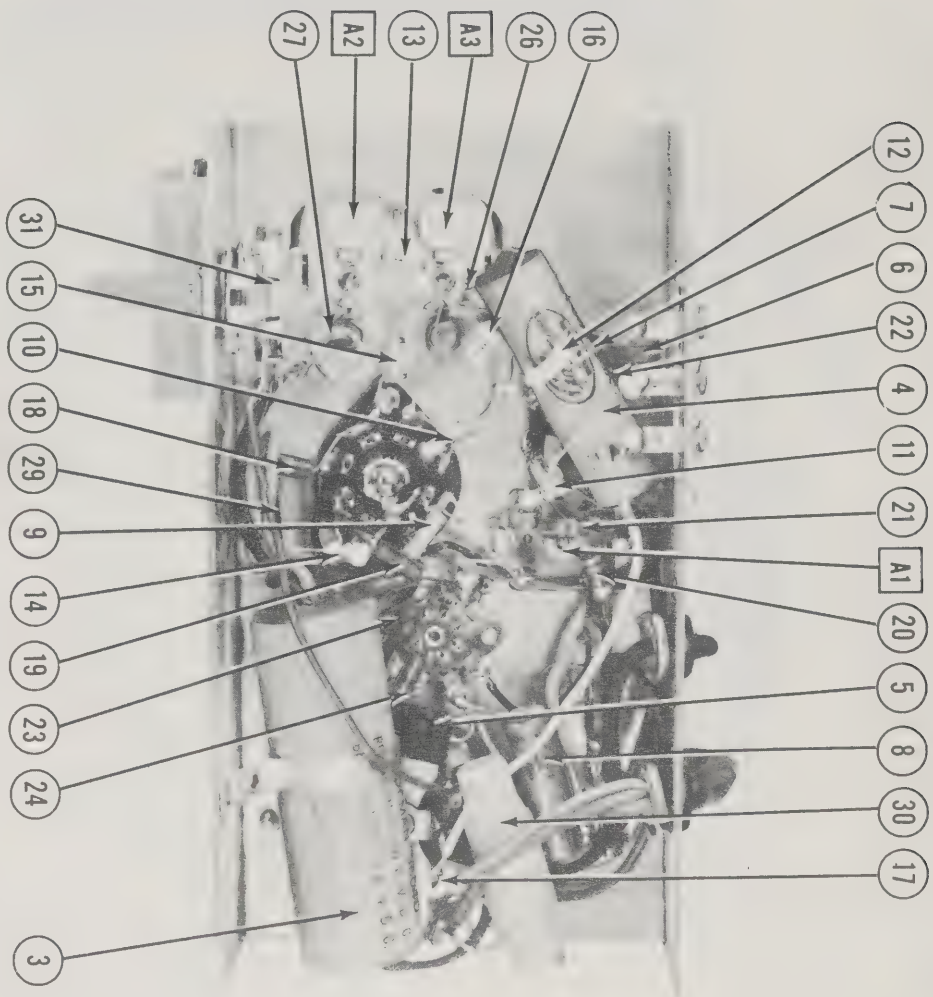
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUDAR PART No.	MEISSNER PART No.	
26	FM Ant.Coil		0Ω	TRF-10009		
27	FM Osc. "		0Ω	TRC-10010		
28	FM IF	.8Ω	3Ω	TSP-10016		
29	RF Choke		2Ω	LG-10002		
30	" "	.1Ω	.1Ω	LG-10001		

MISCELLANEOUS

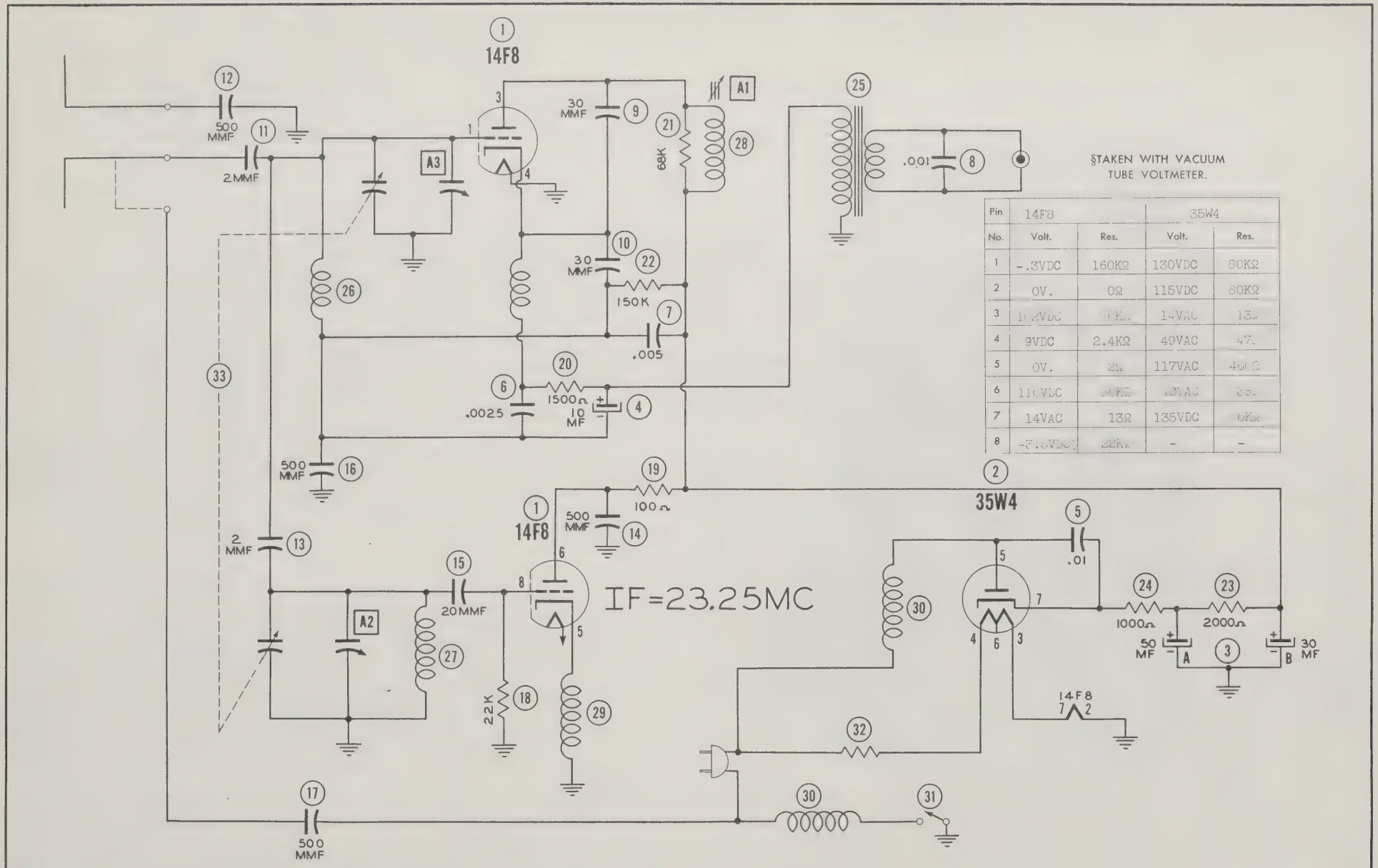
ITEM No.	PART NAME	AUDAR PART No.	NOTES
31	Switch		On-Off (SPST)
32	Line Cord	WP-10003	(Resistor)
33	2 Gang Var. Cap.	CV-10014	

CHASSIS—BOTTOM VIEW



AUDAR MODEL (TELEX) FMC-12

AUDAR MODEL (TELEX) FMC-12



Pin No.	14F8 Volt.	14F8 Res.	35W4 Volt.	35W4 Res.
1	-.3VDC	160KΩ	130VDC	80KΩ
2	0V.	0Ω	115VDC	80KΩ
3	10.2VDC	9K	14VAC	13Ω
4	9VDC	2.4KΩ	49VAC	47Ω
5	0V.	2Ω	117VAC	40Ω
6	110VDC	3.5KΩ	63VAC	65Ω
7	14VAC	13Ω	135VDC	0Ω
8	-7.5VDC	22KΩ	-	-

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - No signal applied for voltage measurements.

DEWALD MODEL B-400
BATTERY OPERATED

DEWALD MODEL B-400
BATTERY OPERATED

DEWALD MODEL B-400

TRADE NAME	Dewald, Model B-400
MANUFACTURER	Dewald Radio Mfg. Corp., 35-28 49th St., Long Island City, N.Y.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output.
POWER SUPPLY	1.5 Volts "A" Supply and 67.5 Volts"B" Supply
RATING	250MA @ 1.5 Volts DC and 8.5 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1680KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1680KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 3/48-485-3 SET #35-FOLDER #3

PARTS LIST AND DESCRIPTIONS

[illegible] MODEL 7-400
[illegible] BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	5	150	2018-1	M-8-150	UT-81	PRS150-8	BR815	Power Supply Bypass
6	.001	200		S-6-001	TC-21	484-001	DT6D1	Output Plate Bypass
7	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling
8	.01	400		S-4-01	TC-11	484-01	DT4S1	AF Screen Bypass
9	.002	600		S-6-002	TC-22	484-002	DT6D2	Audio Coupling
10	.02	400		S-4-05	TC-12	484-02	DT4S2	Screen Bypass
11	.05	400		S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	220	300		MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass-Cer.
13	100	300		MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter-Cer.
14	100	300		MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.-Cer.
34	.05	400		S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supply-See Note

Note-Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	1 Meg.	½	3009-1	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch		" "	42	SW-A2	" " " " "

RESISTORS

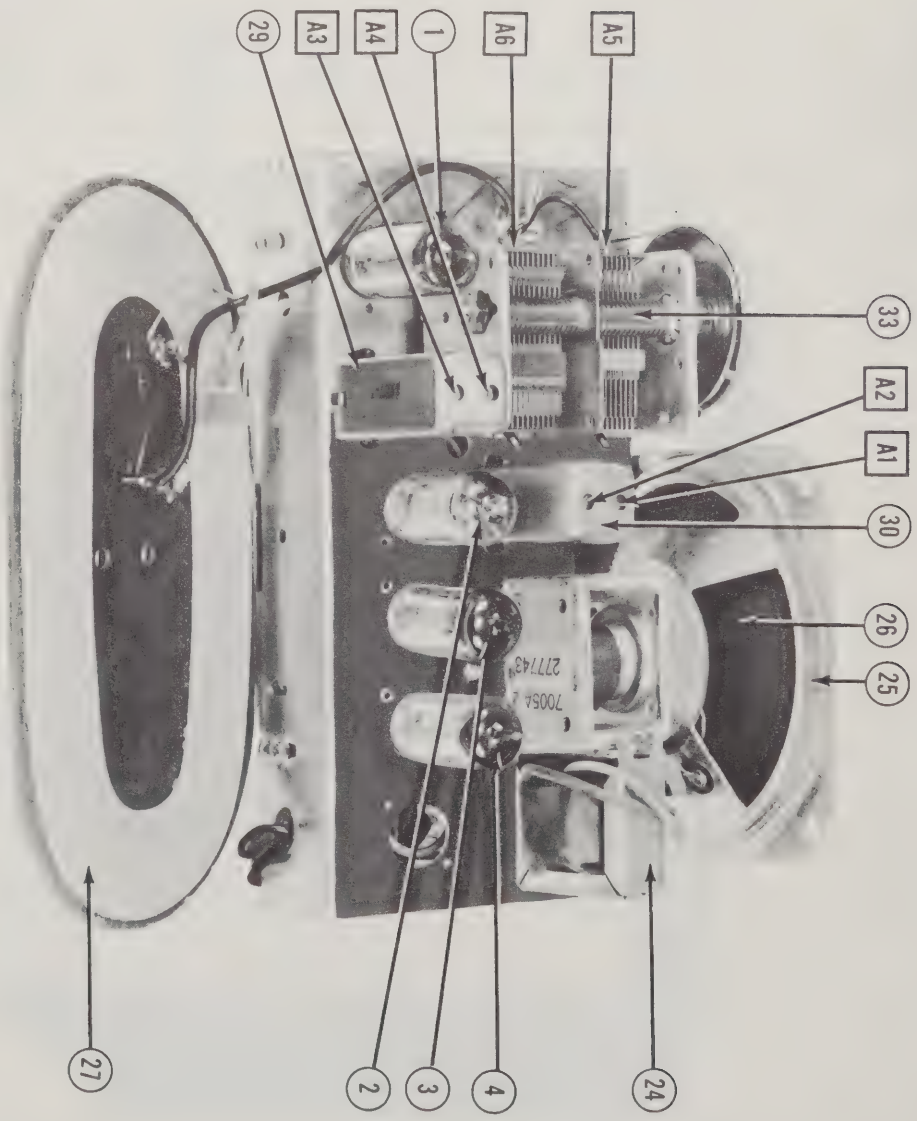
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	IDENTIFICATION CODES
16	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
17	10KΩ	½		BTS-10K	Br.-Blk.-Or. Screen Dropping
18	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping-See Note
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
23	390Ω	½		BW-½-390	Or.-White-br. bias

Note-Some models use 3.3 Meg. in this application. Replacement same as #18.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
24	9500Ω	3.8Ω	650Ω	.6Ω	Part of 7005A-2	A-2570*	T-2547*	A-2632*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: DEWALD PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
25	FIELD PM	VC IMP. 3.8Ω	7005A-2	ST-113 Mod. P4-X	4A07	
26	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

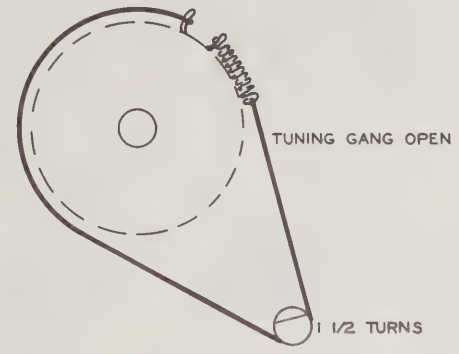
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	MEISSNER PART No.
27	Loop Ant.		1.2Ω	1025A	
28	Osc. Coil	1Ω	6Ω	1020	14-1040
29	Input IF	19.8Ω	19Ω	1027-1	16-6678
30	Output IF	19.5Ω	19.5Ω	1027-2	16-6678

BATTERIES

ITEM No.	VOLTAGE	DEWALD PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
31	1.5V "A"		#950			#2R			2 Used in Parallel
32	67.5V "B"			#467			#XX-45		

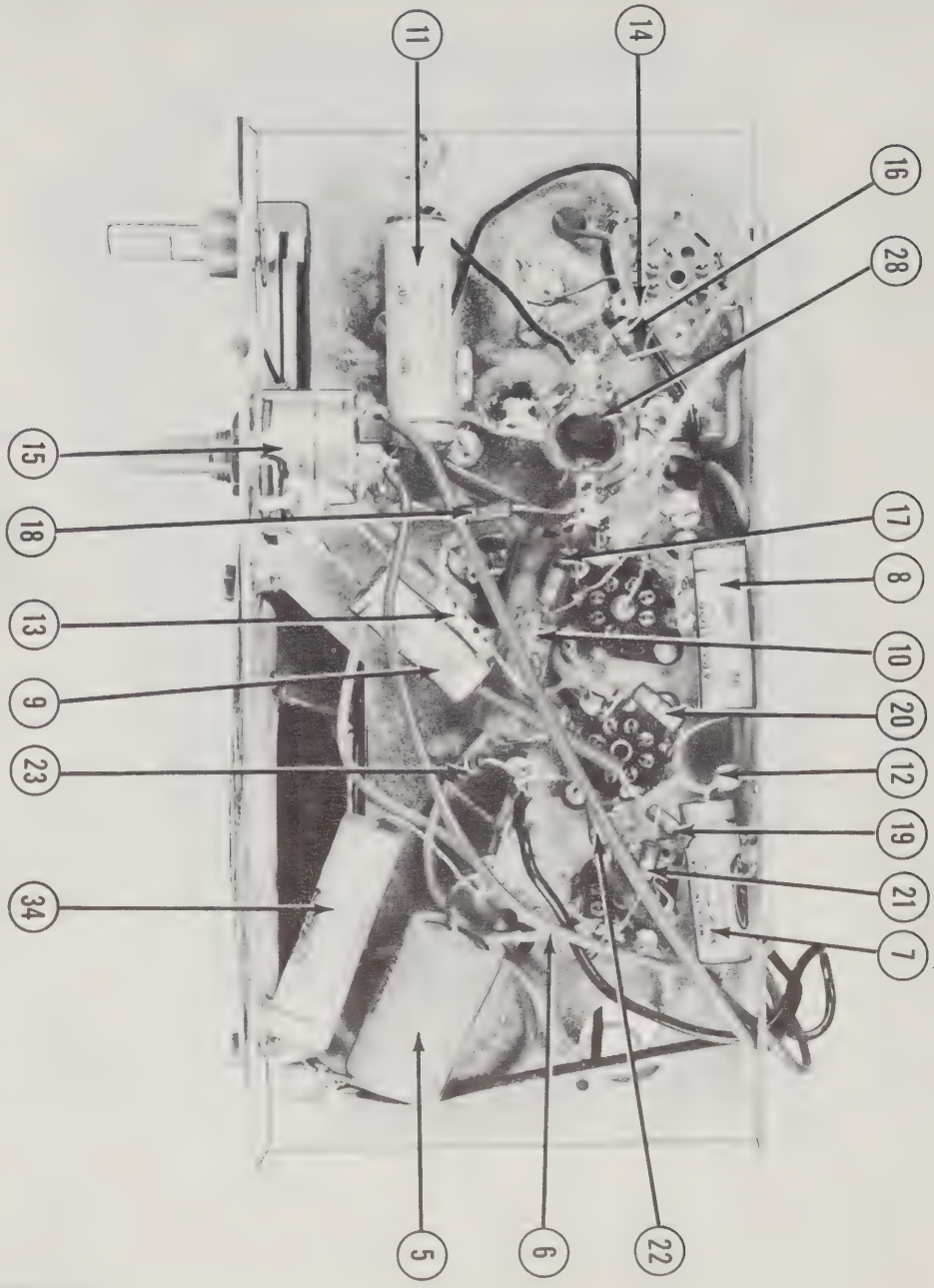
MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
33	2 Gang Var. Cap.	2015C	(23-455MMF, 28-180MMF)
	Dial Scale	6008	



DIAL CORD DRIVE

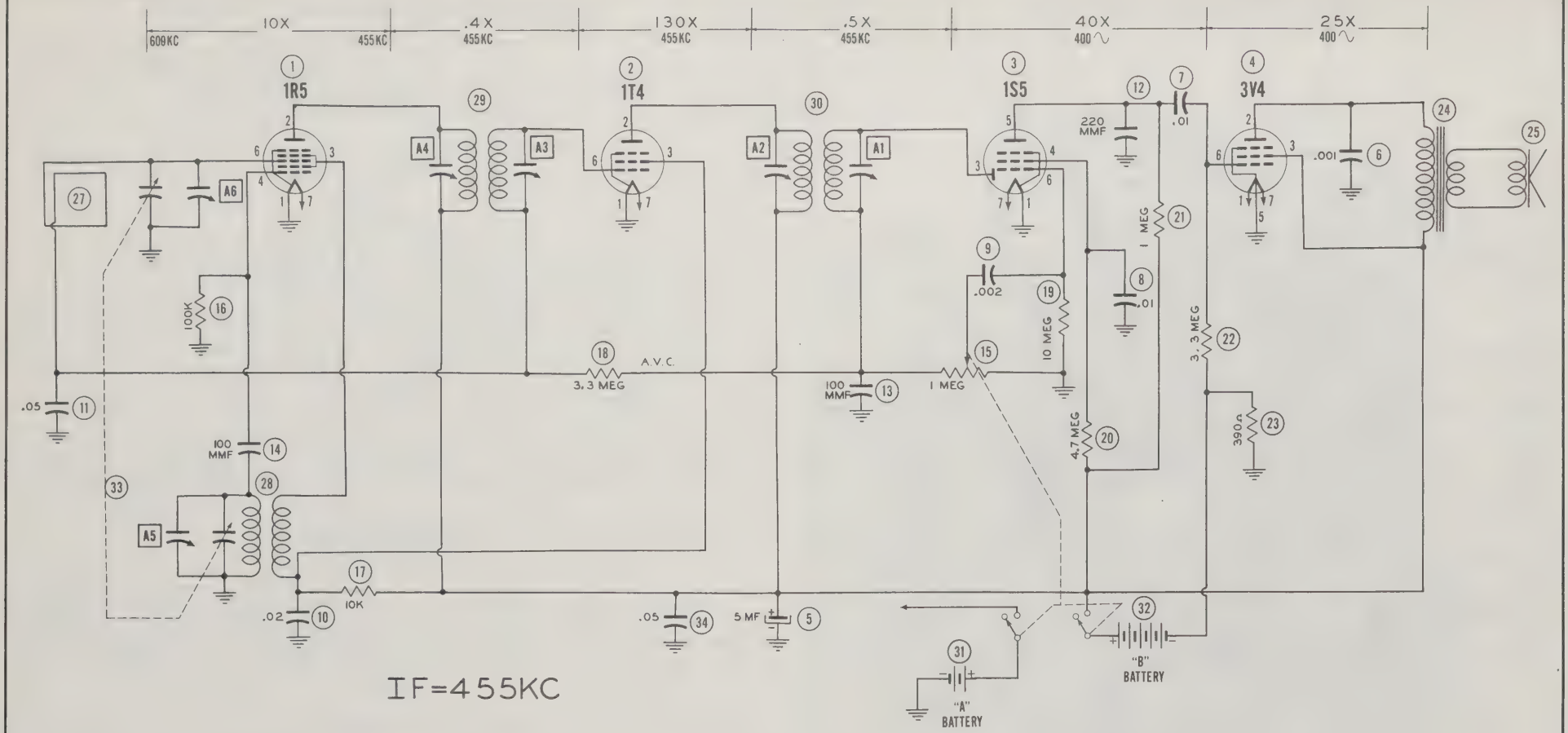
CHASSIS—BOTTOM VIEW



DATE 3/48-#485-3 SET #35-FOLDER #3

DEWALD MODEL B-400 BATTERY OPERATED

DEWALD MODEL B-400 BATTERY OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	[illegible] V.	[illegible] VDC	[illegible] VDC	[illegible] VDC	0V.	[illegible] V.	1.[illegible] VDC
2	1T4	V.	VDC	40VDC	60VDC	V.	V	1.[illegible] VDC
3	[illegible]	V.	VDC	V.	2.4VDC	1.7V.	V.	1.[illegible] VDC
4	3V4	[illegible] VDC	[illegible] VDC	[illegible] VDC	0V.	V	[illegible] VDC	1.[illegible] VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	120KΩ	130KΩ	100KΩ	*	4 Meg.	*
2	1T4	*	120KΩ	130KΩ	120KΩ	*	4 Meg.	*
3	1S5	*	120KΩ	1 Meg.	[illegible]	1.1 Meg.	[illegible]	*
4	3V4	*	1[illegible]	1.[illegible]	[illegible]	*	[illegible] Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

DEWALD
MODEL B-512

DEWALD
MODEL B-512

DEWALD MODEL B-512

TRADE NAME	Dewald, Model B-512
MANUFACTURER	Dewald Radio Mfg. Corp., 35-28 48th St., Long Island City, N.Y.
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	535-1700KC RATING .25 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1720KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BC	
5	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DEWALD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	30	150	2002	DSB-2x30-150	TA-330	PRSA150-30-30	EZ3315	Filter - Yl. " - Red
7	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling " "
10	.005	600		S-6-005	TC-25	684-005	DT4S1	
11	.05	400		S-4-05	TC-15	484-05	DT6D5	RF Bypass Pwr. Supply
12	.05	400		S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	250	300		MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass-Cer.
14	250	300		MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter-Cer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	500KΩ	½	3002	D13-133	AM-60-Z	Volume Control
B	Shaft			A	RS-2	Attach to 15A per instructions
C	Switch			41	SW-A	" " " " "

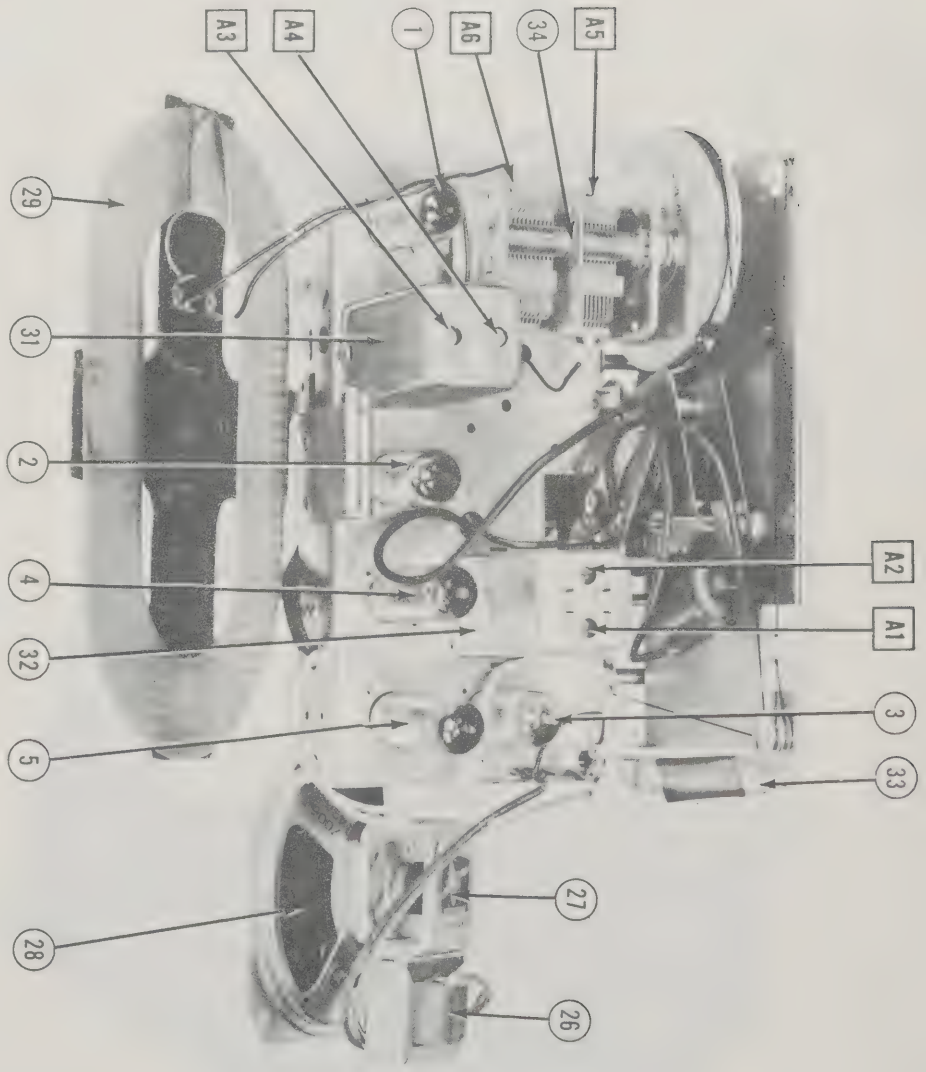
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
16	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
17	680Ω	½		BTS-680	Blue-Gray-Br. Converter Cathode
18	100Ω	½		BW-½-100	Br.-Blk.-Br. IF Cathode
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vl.-Grn. AF Grid
21	510KΩ	½		BTS-470K	Grn.-Br.-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Output Grid
23	150Ω	2		BW-½-150	Br.-Grn.-Br. Output Cathode
24	2700Ω	2		BT-2-2700	Red-Vl.-Red Filter
25	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
26	2000Ω	3.4Ω	165Ω	.6Ω	Part of 7006-1	A-3876*	T23345*	A-2925*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: DEWALD PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
27	FIELD PM	VC IMP. 3.4Ω	7006-1	ST-113† Mod. P4-X		†Trim Flange
28	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

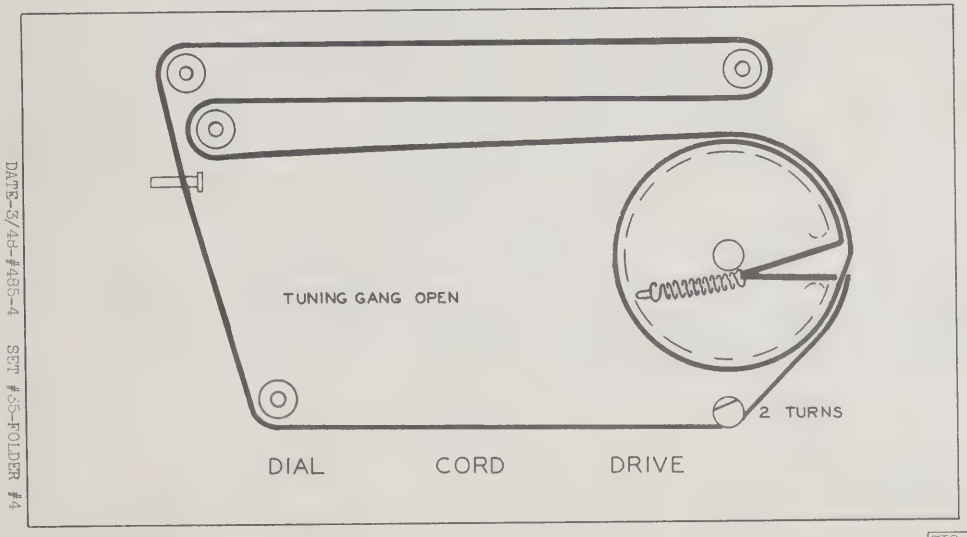
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	MEISSNER PART No.	
29	Loop Ant.		1.1Ω	1001		
30	Osc. Coil		4Ω	1003	14-1040‡	‡Add 50 MMFD from osc. grid to high side tuning cap.
31	Input IF	79Ω	23Ω	1000	16-6658	
32	Output IF	24Ω	23.9Ω	1002	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: DEWALD PART No.		INSTALLATION NOTES
33	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

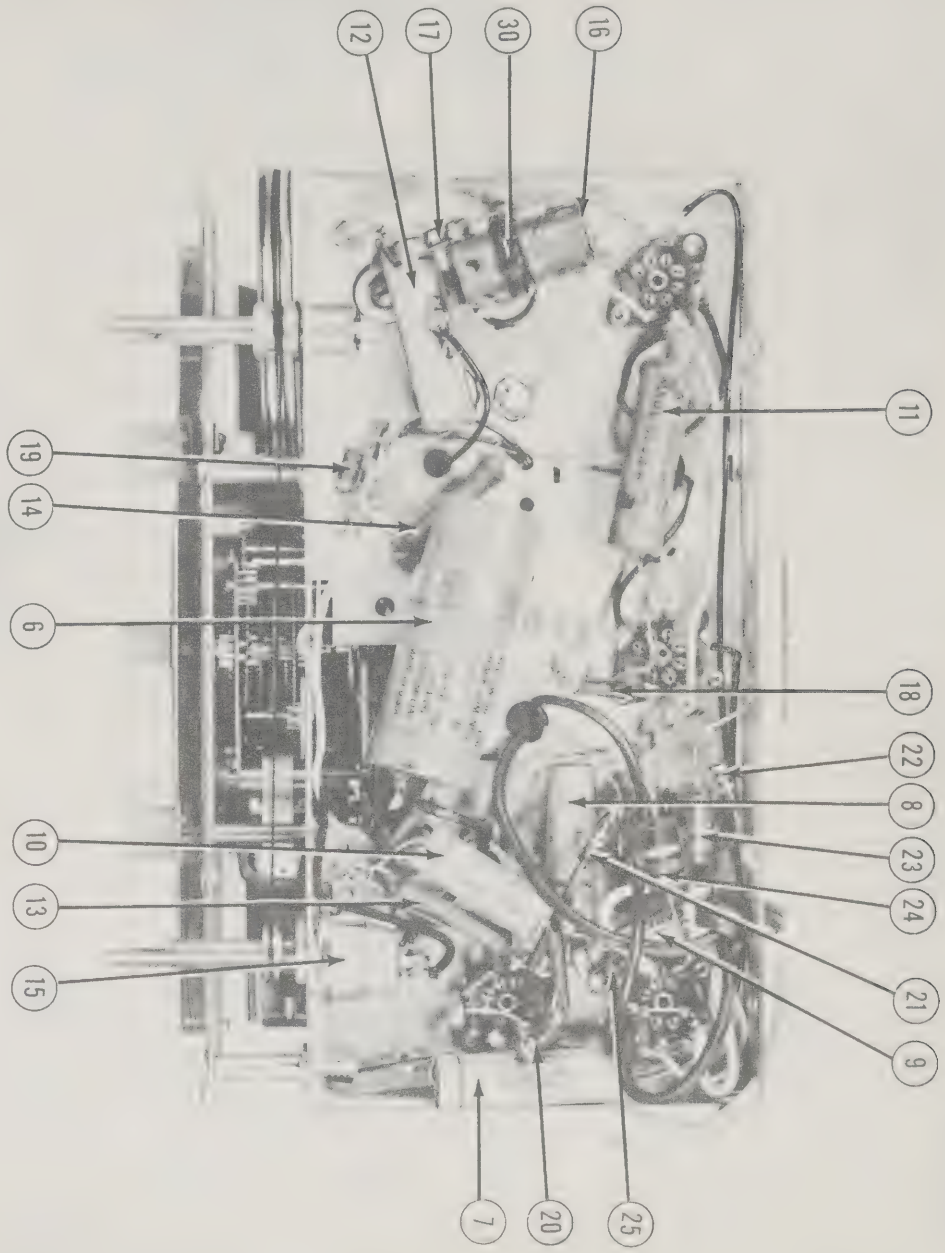
ITEM No.	PART NAME	DEWALD PART No.	NOTES
34	2 Gang Var. Cap.	2003	(21-458 MMF, 25-190MMF)
	Dial Scale	6000	
	Clock	8026	
	Face	6013	Crystal



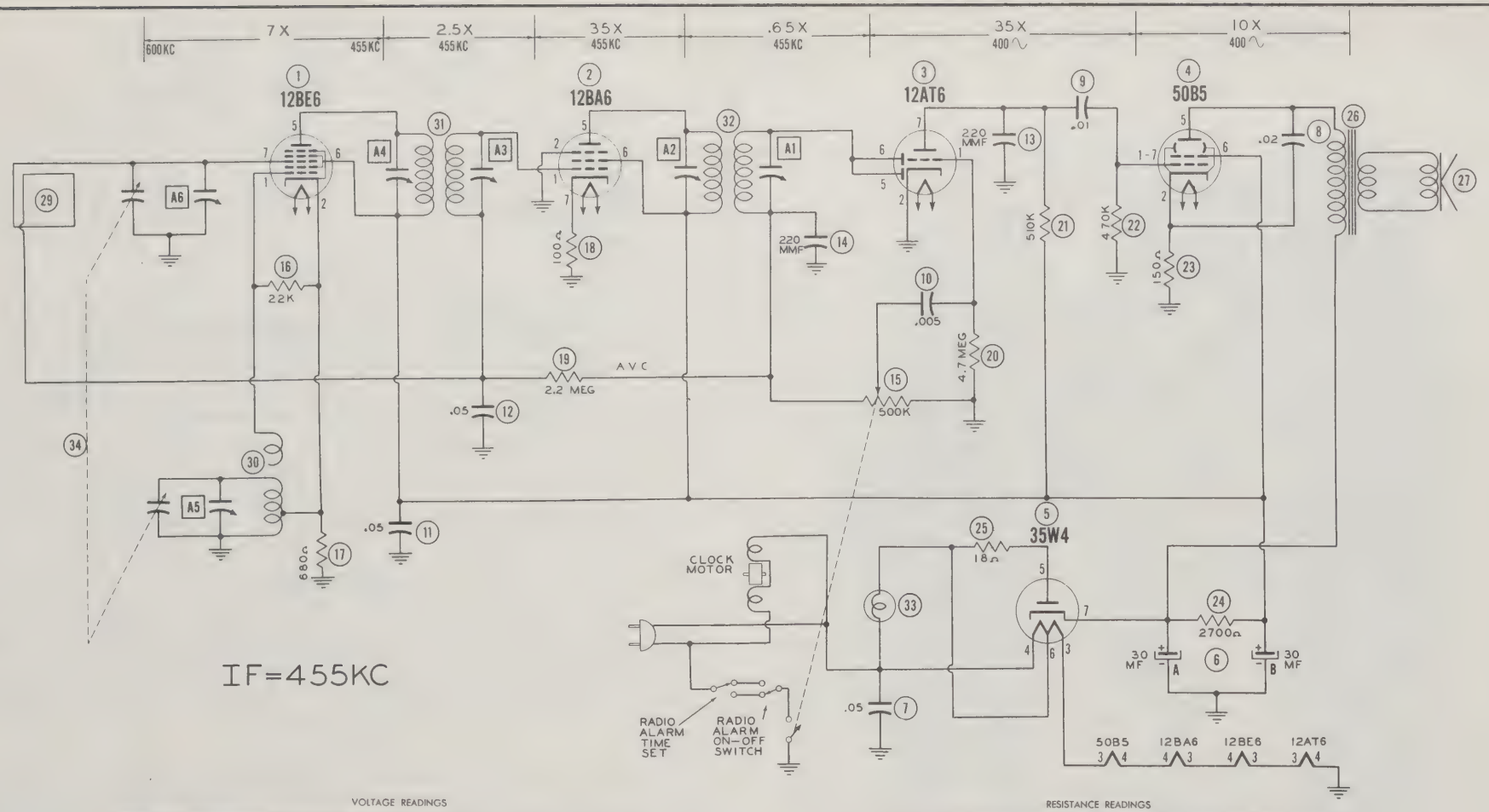
DATE-3/4+-#485-4 SET #35-FOLDER #4

DEWALD MODEL B-512

CHASSIS—BOTTOM VIEW



DEWALD MODEL B-512



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	[illegible]	-1.[illegible]VDC	0V.	12.5VAC	25VAC	75VDC	75VDC	-.05VDC
2	[illegible]	-.[illegible]VDC	[illegible]	25VAC	38VAC	75VDC	75VDC	.6VDC
3	[illegible]	-.[illegible]	[illegible]	[illegible]VAC	0V.	-.6VDC	-.6VDC	35VDC
4	[illegible]	0V.	[illegible]	89VAC	38VAC	116VDC	75VDC	0V.
5	[illegible]	117VAC	0V.	89VAC	117VAC	113VAC	114VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	.5Ω	13Ω	24Ω	43KΩ	43KΩ	3 Meg.
2	[illegible]	3 M[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	43KΩ	100Ω
3	12AT6	5 Meg.	0Ω	13Ω	0Ω	480KΩ	480KΩ	550KΩ
4	50B5	480KΩ	150Ω	80Ω	35Ω	45KΩ	43KΩ	430KΩ
5	35W4	100Ω	INF.	80Ω	100Ω	120Ω	99Ω	45KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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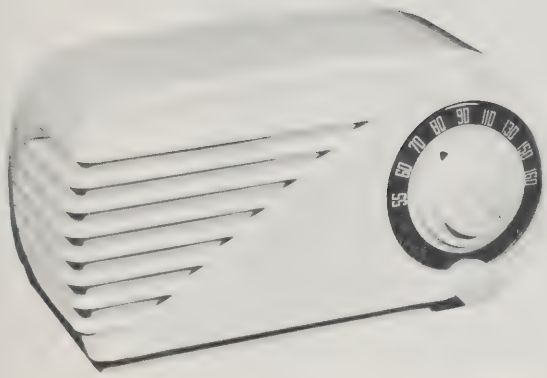
485-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

FARNSWORTH MODELS GT-050, GT-051, GT-052



MODEL GT 051

MODEL GT 050

FARNSWORTH MODELS GT-050, GT-051, GT-052

FARNSWORTH MODEL GT-050

TRADE NAME	Farnsworth, Models GT-050, GT-051, GT-052
MANUFACTURER	Farnsworth Tel. & Radio Corp., Fort Wayne, Ind.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1625KC

RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	200MMFD	Across loop primary leads.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output.
2	200MMFD	"	"	"	"	A3,A4	" " " "
3	200MMFD	"	1625KC	"	"	A5	" " " "
4	200MMFD	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

FARNSWORTH MODELS
[illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	5N	
3	Det.-AVC-AF	12SQ7	12SQ7	5W	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FARNSWORTH PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	25022	DSB-2x30-150	TA-230	PRSA150-20-30	EZ3315	Filter - Red
B	20	150						" - Yl.
7	.02	600	25195	MPH-6-02	TC-12	684-02	DT6S2	Line Filter
8	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
9	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200	25196	S-4-05	TC-15	484-05	DT2S5	AVC Filter
12	.1	200	25182	S-2-1	TC-1	484-.1	DT2P1	Line Isolation
13	240	500	25427	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass-Cer.
14	240	500	25427	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter-Cer.
15	47	500	25426	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.-Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16	500KΩ	½	78143			Volume Control & Sw.

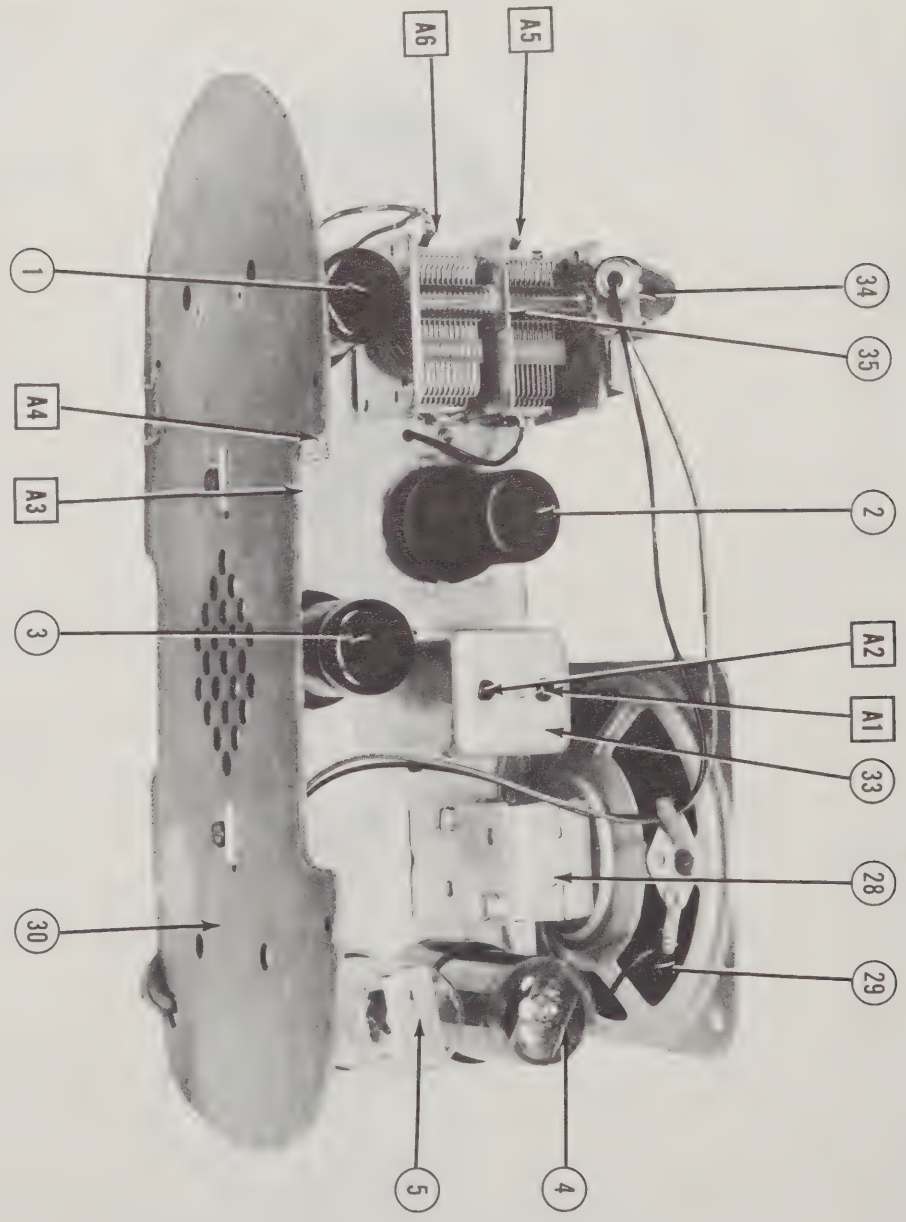
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½	77266	BTS-22K	Red-Red-Or. Oscillator Grid
18	2.2 Meg.	½	77270	BTS-2.2 Meg.	Red-Red-Yl. AVC Network
19	47KΩ	½	77213	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
20	6.8 Meg.	½	77273	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
21	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
22	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Output Cathode
24	10KΩ	2	77427	BT-2-10K	Br.-Blk.-Or. Bleeder
25	1500Ω	1	77342	BTA-1500	Br.-Grn.-Red Filter
26	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FARNSWORTH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
27	1500Ω	3.1Ω	170Ω	.9Ω	94247	A-3368*	T2S45*	A-3368*	*Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA FARNSWORTH PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-113†		†Drill and tap magnet frame.
28	PM	3.1Ω	81168	Mod. P4-X	4A07‡	‡Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
29	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA FARNSWORTH PART No.	REPLACEMENT DATA MEISSNER PART No.
30	Loop Ant.	.1Ω	2.5Ω	38866	
31	Osc. Coil	.5Ω	3.2Ω	38706	14-1040
32	Input IF	24.8Ω	24.5Ω	38844	16-6661
33	Output IF	12.5Ω	12.2Ω	38840	16-6660

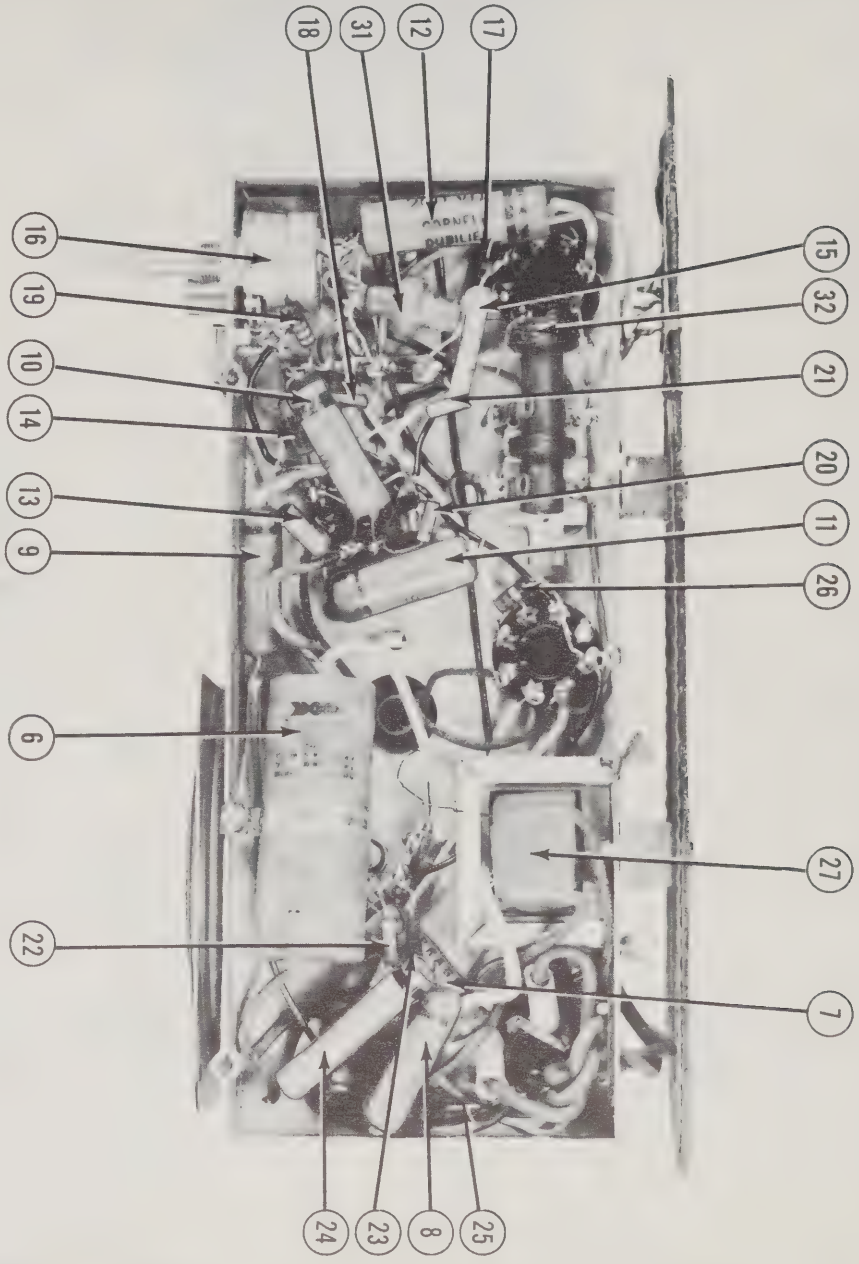
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA FARNSWORTH PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown	42186		Type 47

MISCELLANEOUS

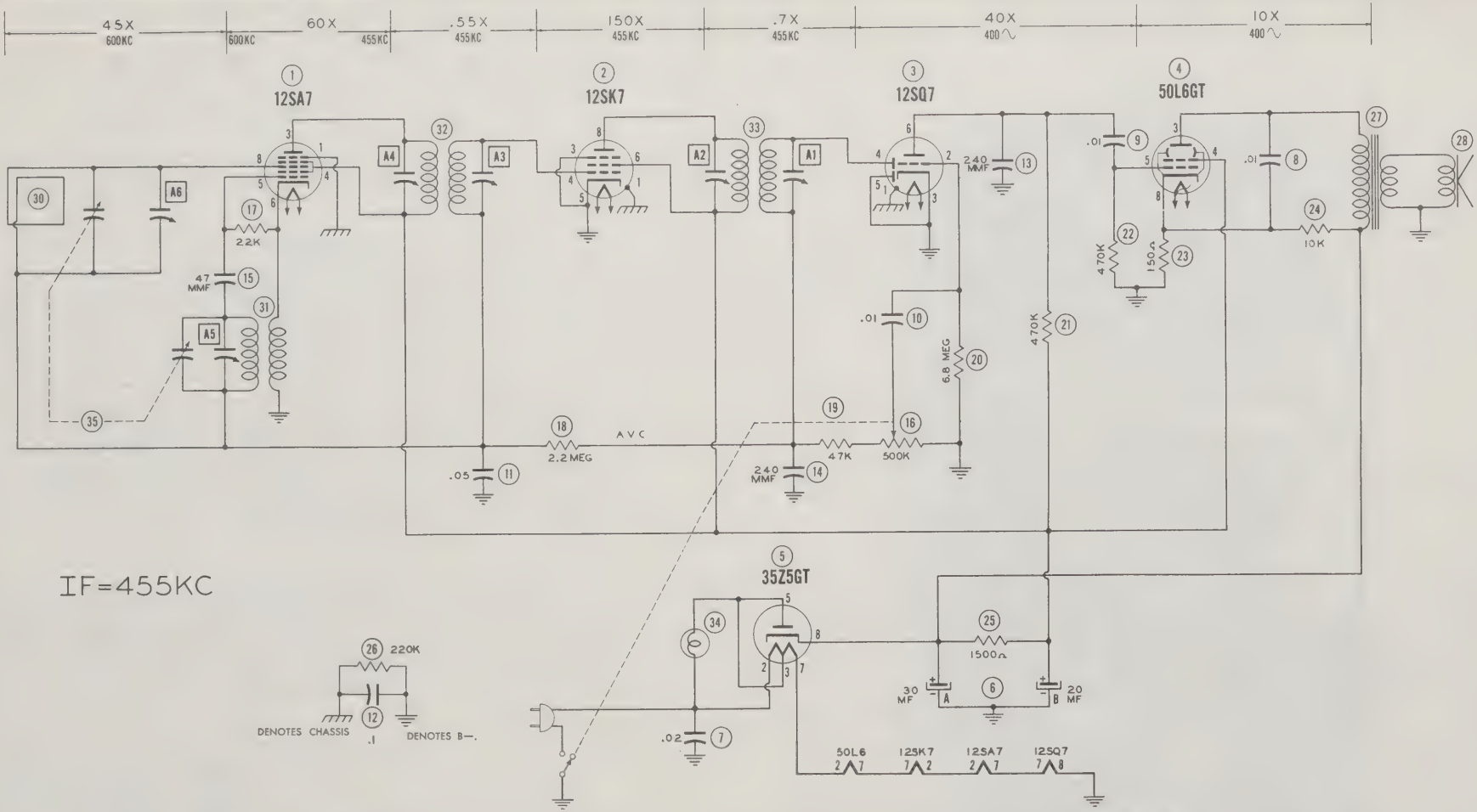
ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
35	2 Gang Var. Cap. Dial Scale	26239 31426	(30-465 MMF, 33-198 MMF)

CHASSIS—BOTTOM VIEW



FARNSWORTH MODELS
GT-050, GT-051-GT-052

FARNSWORTH MODELS
GT-050, GT-051, GT-052



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	[illegible]	[illegible]	[illegible]	85VDC	[illegible]	[illegible]	[illegible]	-.4VDC
2	12SK7	[illegible]	[illegible]	[illegible]	-.4VDC	0V.	85VDC	33VAC	85VDC
3	12SQ7	[illegible]	[illegible]	0V.	-.4VDC	0V.	45VDC	[illegible]	[illegible]
4	50L6GT	[illegible]	85VAC	116VDC	85VDC	0V.	121VDC	33VAC	6VDC
5	35Z5GT	[illegible]	117VAC	113VAC	0V.	113VAC	0V.	85V.	[illegible]

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	220KΩ	25Ω	11.5KΩ	11.5KΩ	22KΩ	.2Ω	13Ω	3 Meg.
2	12SK7	220KΩ	25Ω	0Ω	3 Meg.	0Ω	11.5KΩ	40Ω	11.5KΩ
3	12SQ7	220KΩ	6.8 Meg.	0Ω	500KΩ	0Ω	480KΩ	13Ω	0Ω
4	50L6GT	220KΩ	87Ω	1.[illegible]KΩ	11.5KΩ	470KΩ	1.[illegible]	4[illegible]Ω	[illegible]
5	35Z5GT	INF.	120Ω	117Ω	0Ω	117Ω	INF.	[illegible]	1.[illegible]K

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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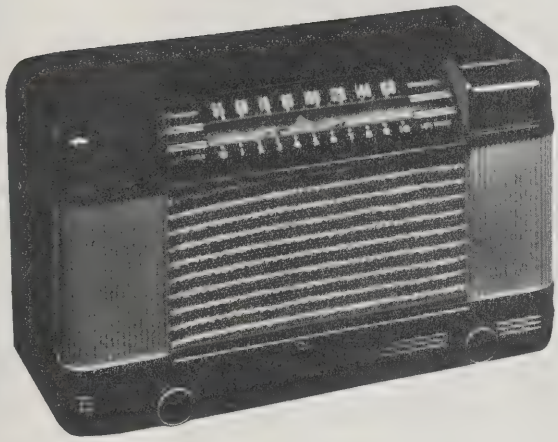
485-5

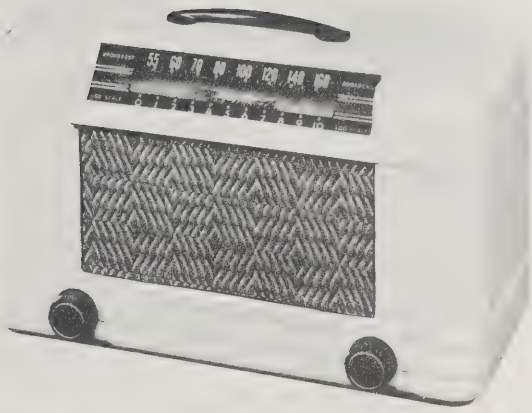
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FARNSWORTH MODELS GT-060, GT-061, GT-064, GT-065



MODEL GT064



MODEL GT065

FARNSWORTH MODELS GT-060, GT-061, GT-064, GT-065

TRADE NAME	Farnsworth, Models GT-060, GT-061, GT-064, GT-065
MANUFACTURER	Farnsworth Tele. & Radio Corp., Fort Wayne, Ind.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .27 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to 1st reference mark at left end of dial backplate. The remaining reference marks reading from left to right are: 600KC, 1000KC & 1500KC.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	100MMFD	High side to ext. ant. lead. Low side to ext. ground lead.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	100MMFD	"	1500KC	1500KC reference mark	"	A5	Adjust for maximum output. Trimmer opposite A5 is factory adjustment and ordinarily need not be adjusted.
3	100MMFD	"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output. Check calibration at 600KC.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FARNSWORTH PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	7N	
2	Converter	12SA7	12SA7	7R	
3	IF Amp.	12SK7	12SK7	7N	
4	Det.-AVC-AF	12SQ7	12SQ7	7Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	FARNSWORTH PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	30	150	25022	DSB-2x30-150	TA-230	PRSA150-20-30	EZ3315	Filter - Red
B	20	150						" - Yl.
8	.02	600	25195	S-6-02	TC-12	684-02	DT6S2	Rectifier Bypass
9	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
10	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400	25194	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	200	25196	S-4-05	TC-15	484-05	DT2S5	AVC Filter
13	.05	200	25196	S-4-05	TC-15	484-05	DT2S5	RF Bypass Pwr. Supply
14	.05	200	25196	S-4-05	TC-15	484-05	DT2S5	RF Screen Bypass
15	.1	200	25216	S-2-1	TC-1	484-.1	DT2P1	Line Isolation
16	240	500	25187	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
17	240	500	25187	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
18	47	500	25193	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.
19	100	500	25188	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	FARNSWORTH PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	½	78048	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 20A per instructions
C	Switch		" "	41	SW-A	" " " " "

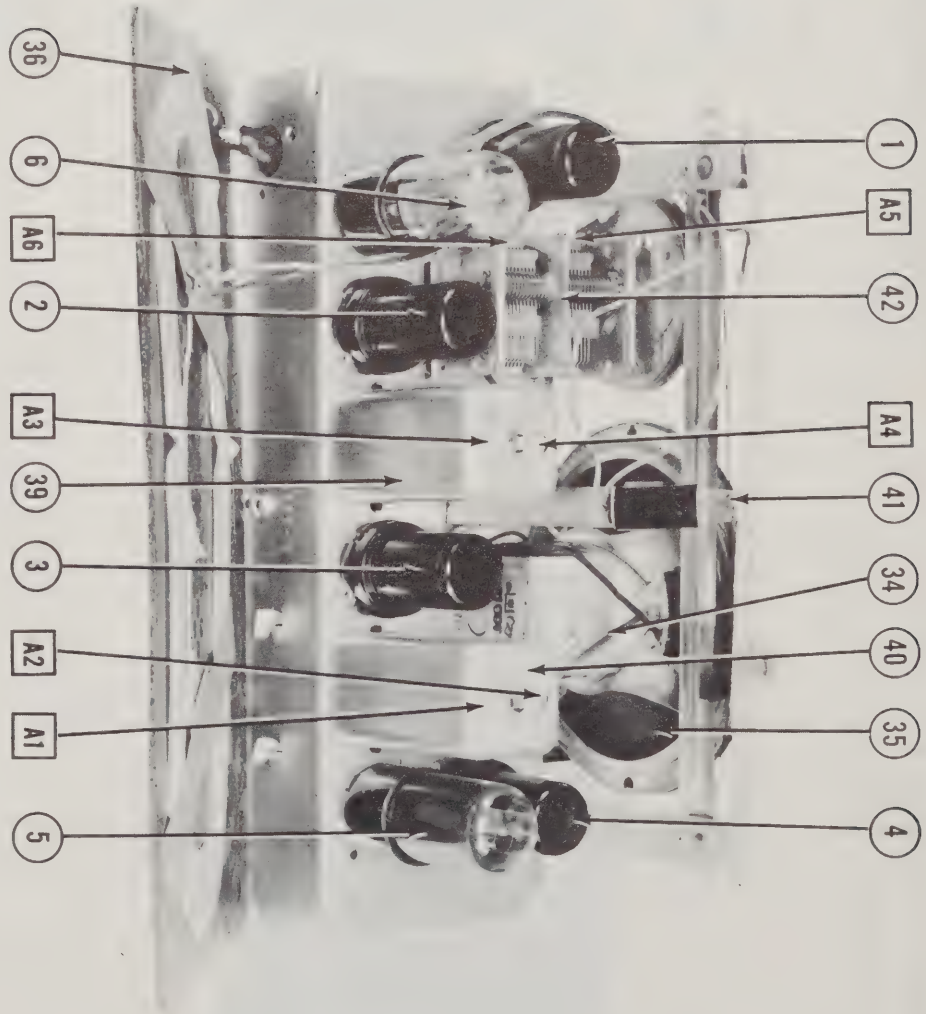
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FARNSWORTH PART No.	IRC PART No.	
21	15KΩ	½	77265	BTS-15K	Br.-Grn.-Or. RF Screen Dropping
22	4700Ω	½	77211	BTS-4700	Yl.-Vi.-Red RF Plate Load
23	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Converter Grid
24	22KΩ	½	77266	BTS-22K	Red-Red-Or. Oscillator Grid
25	470Ω	½	77261	BTS-470	Yl.-Vi.-Br. Decoupling
26	2.2 Meg.	½	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	6.8 Meg.	½	77273	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
28	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
29	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Output Cathode
31	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt
32	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FARNSWORTH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
33	1.900Ω	7.5Ω	200Ω	.75Ω	94091	A-3378*	T2S49*	A-2928*	*Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FARNSWORTH PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD RES.	VC IMP.		ST-189†		†Parallel field coil with 650Ω resistor.
34	270Ω	3.5Ω	81091	Mod. F5-X		
	CONE DIA.	VC DIA.				
35	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	FARNSWORTH PART No.	MEISSNER PART No.
36	Loop Ant.		1.5Ω	3d478	
37	Wave Trap		INF.	38484	
38	Osc. Trap	.7Ω	5Ω	38483	14-1040
39	Input IF	15.3Ω	12.3Ω	38322	16-6658
40	Output IF	12.8Ω	11.9Ω	38324	16-6660

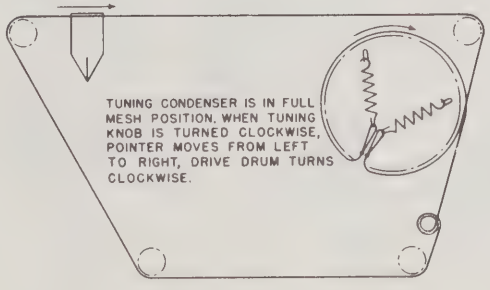
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FARNSWORTH PART No.		
41	Bayonet	6-8	0.15	Brown			Type 47

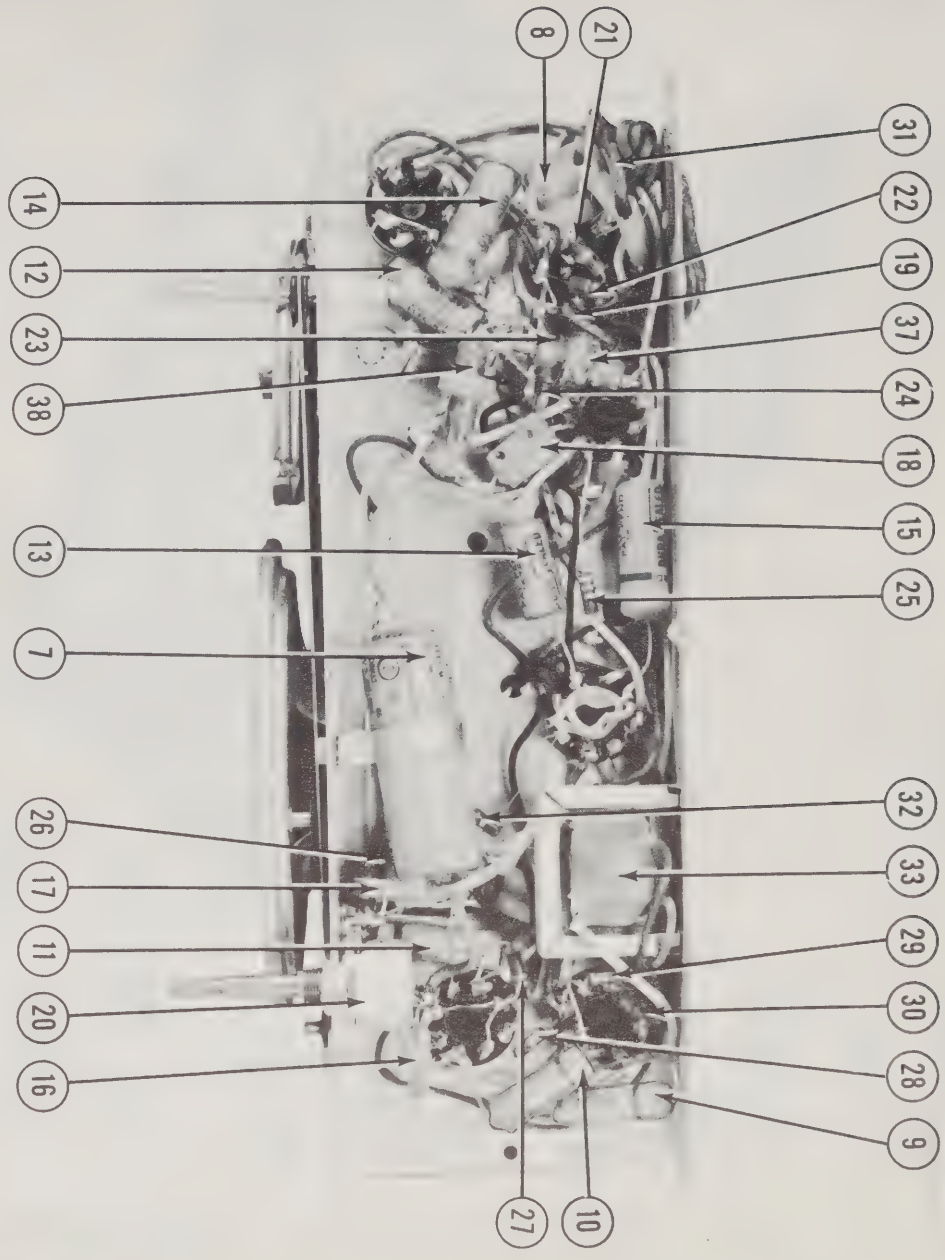
MISCELLANEOUS

ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
42	2 Gang Var. Cap.	26154	(32-460MMF, 35-196MMF) 26153 Alternate
A6	Trimmer	26233	Ant. Adj.
	Dial Scale	31265	
	Dial Pointer	07316	

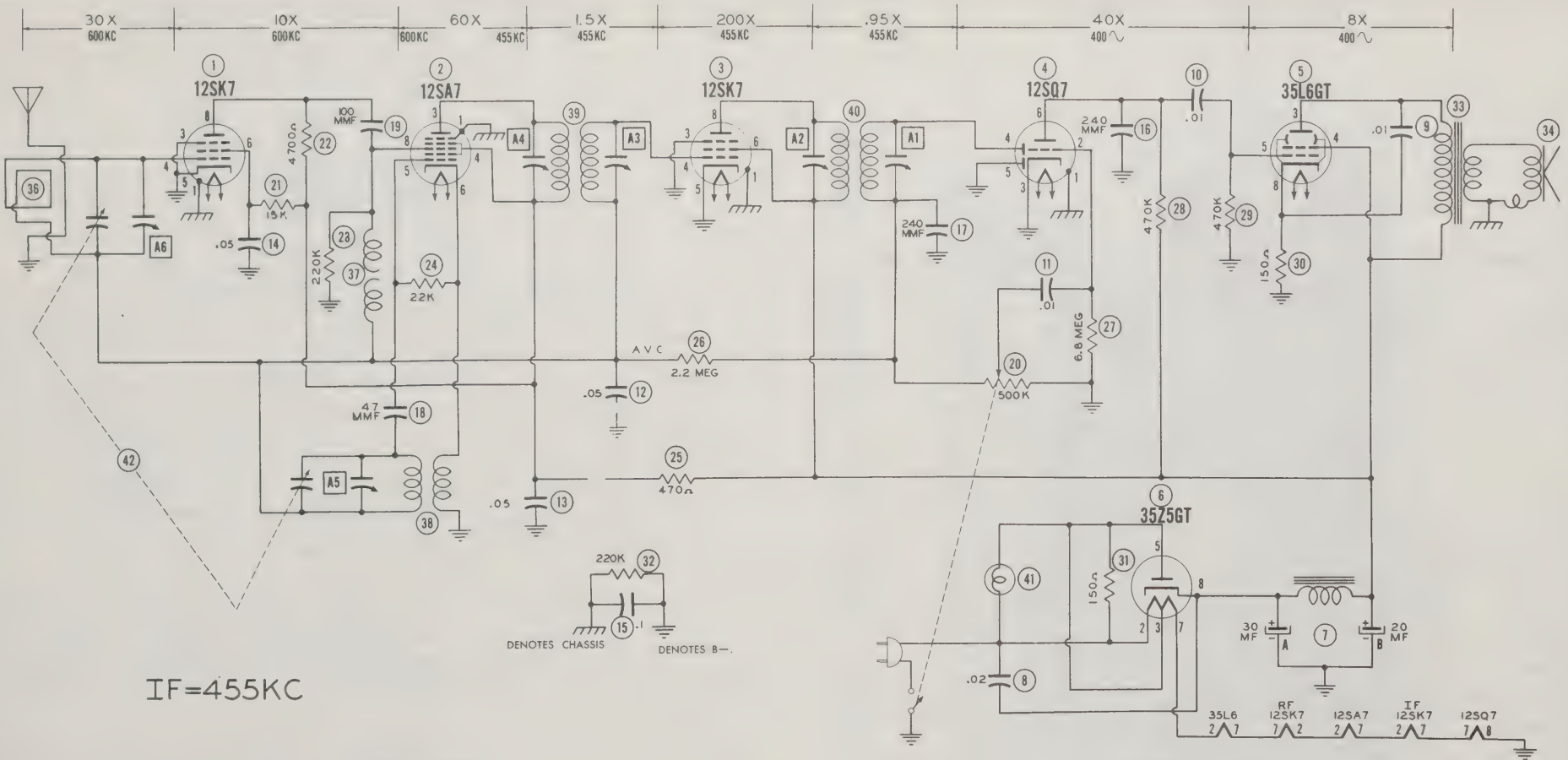
DIAL STRINGING


TUNING CONDENSER IS IN FULL MESH POSITION. WHEN TUNING KNOB IS TURNED CLOCKWISE, POINTER MOVES FROM LEFT TO RIGHT, DRIVE DRUM TURNS CLOCKWISE.

CHASSIS—BOTTOM VIEW



FARNSWORTH MODELS GT-000
GT-011, GT-004, GT-005



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	39VAC	0V.	-.8VDC	0V.	60VDC	50VAC	55VDC
2	12SA7	0V.	39VAC	90VDC	90VDC	-8VDC§	0V.	26VAC	-.05VDC
3	12SK7	0V.	26VAC	0V.	-.8VDC	0V.	100VDC	13VAC	100VDC
4	12SQ7	0V.	-.4VDC	0V.	-.3VDC	0V.	52VDC	13VAC	0V.
5	35L6GT	0V.	87VAC	95VDC	100VDC	0V.	0V.	50VAC	5.7VDC
6	35Z5GT	0V.	117VAC	114VAC	0V.	114VAC	90VDC	87VAC	120VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	220KΩ	36Ω	0Ω	2.7 Meg.	0Ω	250KΩ	40Ω	250KΩ
2	12SA7	220KΩ	36Ω	250KΩ	250KΩ	.2MΩ	.7Ω	36Ω	250KΩ
3	12SK7	220KΩ	25Ω	0Ω	2.7 Meg.	0Ω	250KΩ	16Ω	250KΩ
4	12SQ7	220KΩ	6.8 Meg.	0Ω	500KΩ	0Ω	700KΩ	13Ω	0Ω
5	35L6GT	220KΩ	80Ω	250KΩ	250KΩ	4[illegible]Ω	0Ω	40Ω	1[illegible]Ω
6	35Z5GT	INF.	105Ω	102Ω	0Ω	1[illegible]Ω	3[illegible]Ω	0Ω	3[illegible]Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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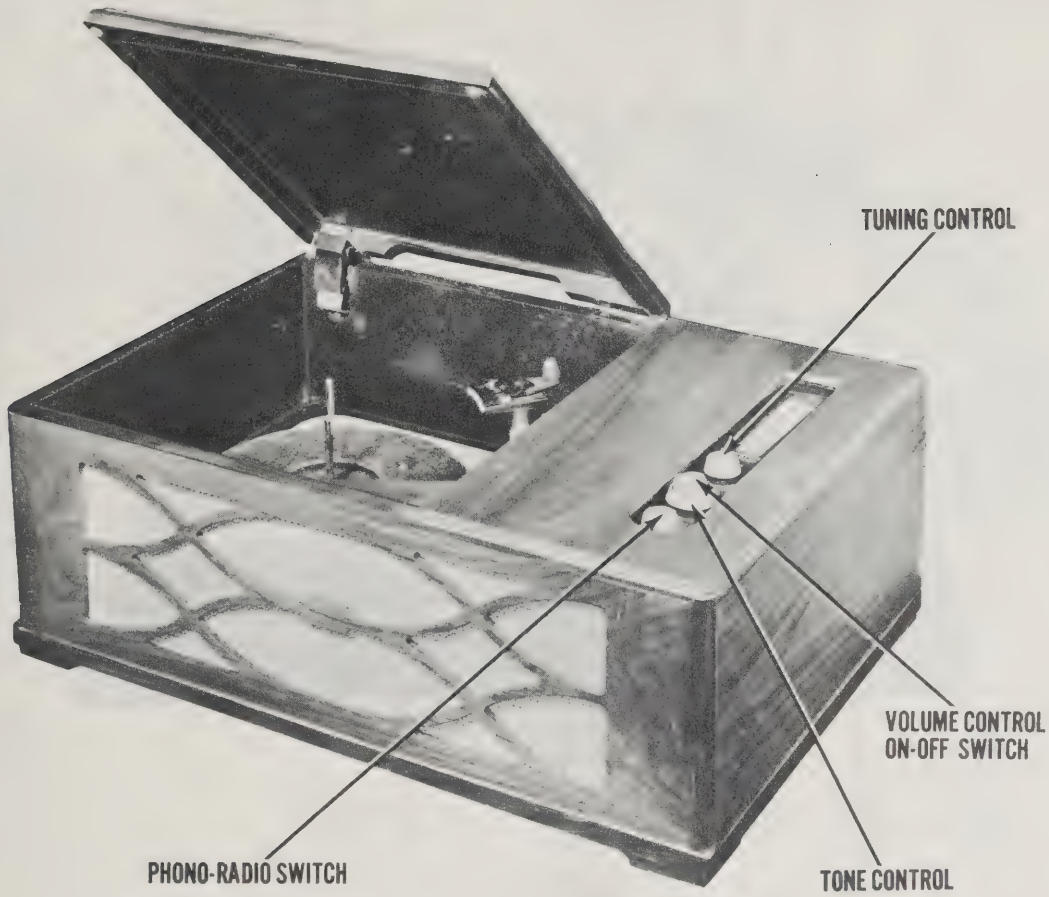
485-6

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FIRESTONE (AIR CHIEF) MODEL
4-A-17 (Code #213-7-7270)



FIRESTONE (AIR CHIEF) MODEL
4-A-17 (Code #213-7-7270)

AIR CHIEF MODEL 4-A-17

TRADE NAME	Firestone (Air Chief) Model 4-A-17 (Code 213-7-7270)
SUPPLIER	Firestone Tire & Rubber Co., Akron, Ohio
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 7C6 Phase Inv., (2) 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .27 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 7A8. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output in order given and then repeat. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	.1 MFD.	"	1620KC	"	"	A5	Adjust for maximum output.
3		Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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Printed in U. S. of America
DATE 3/48-#485-7 SET #35-FOLDER #7

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT		
1	Converter	7A8	7A8	6U	
2	IF Amp.	7B7	7B7	6V	
3	Det.-AVC-AF	7C6	7C6	6W	
4	Phase Inv.	7C6	7C6	6W	
5	Power Output	35L6GT	35L6GT	7AC	
6	" "	35L6GT	35L6GT	7AC	
7	Rectifier	35Z5GT	35Z5GT	5AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIR CHIEF PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	40	150	A-56154	DY-401*	EL-224*	AF862J4A*	UP43145C*	◓ Filter
B	20	150						■ "
C	10	150						▲ "
9	.05	400	BD410503	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
10	.005	600	BD610502	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
11	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
12	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	" "
13	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	Phase Inv. Decoupling
14	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
15	.005	600	BD610502	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
16	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	AF Plate Decoupling
17	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	Phono Isolation
18	.01	400	BD410103	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
19	.05	200	BD210503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
20	.05	400	BD410503	MPH-4-05	TC-15	484-05	DT4S5	Line Isolation
21	220	500	BM74A221	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
22	100	500	BM74A101	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.

*Omit bypass section.

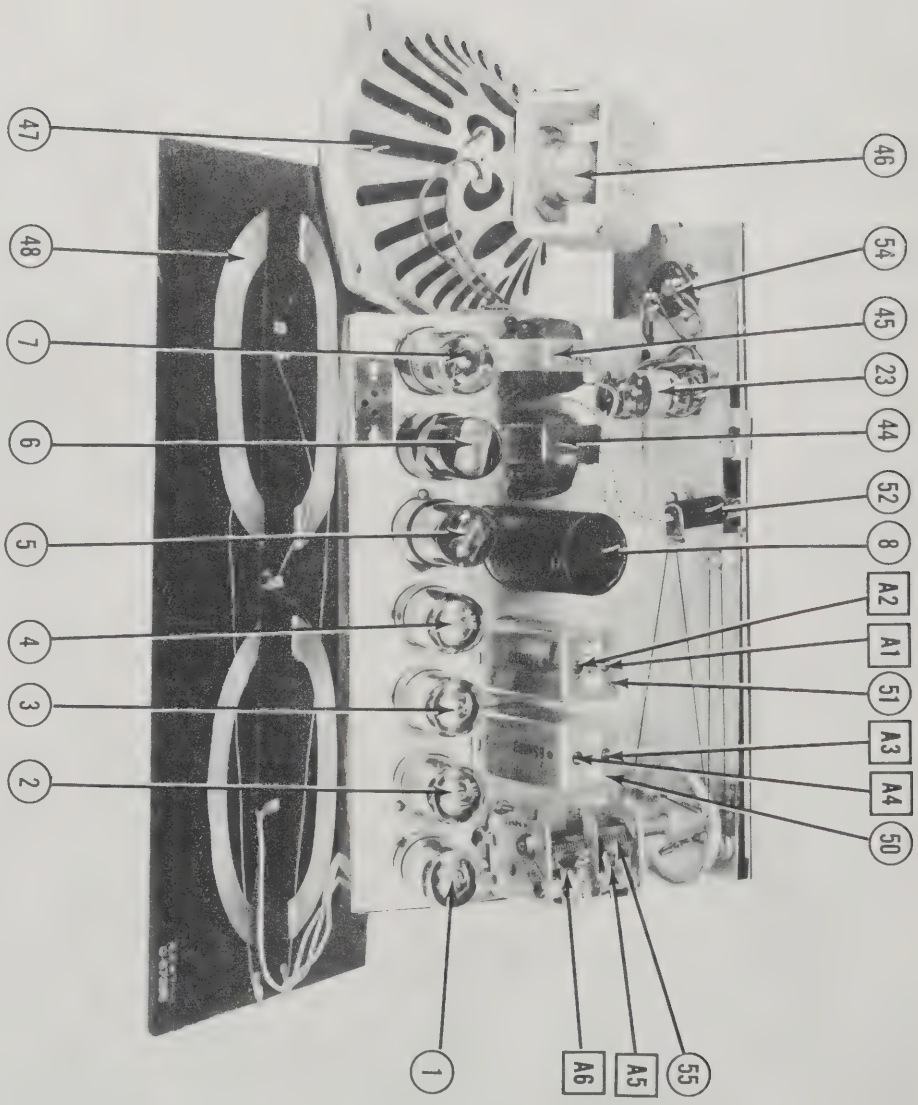
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.	CLAROSTAT PART No.	
23	500KΩ-500KΩ	½	B-56142-1			Volume-Tone Controls & Sw.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.	
24	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Line Isolation
25	47KΩ	½	BR17B473	BTS-47K	Yl.-Vi.-Or. Oscillator Grid
26	15 Meg.	½	BR17B156	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
27	3.3 Meg.	½	BR17B335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
28	10KΩ	½	BR17B103	BTS-10K	Br.-Blk.-Or. Converter Screen Dropping
29	6.8 Meg.	½	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
30	150KΩ	½	BR17B154	BTS-150K	Br.-Grn.-Yl. AF Plate Load
31	150KΩ	½	BR17B154	BTS-150K	Br.-Grn.-Yl. AF Plate Decoupling
32	4700Ω	½	BR17B472	BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
33	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode
34	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Grid
35	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
36	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Decoupling
37	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
38	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	100Ω	2	BR17C101	BW-½-100	Br.-Blk.-Br. Output Cathode
40	1000Ω	½	BR17B102	BTS-1000	Br.-Blk.-Red Filament Shunt
41	10KΩ	½	BR17B103	BTS-10K	Br.-Blk.-Or. " "
42	47Ω	2	BR17G470	BW-2-47	Yl.-Vi.-Blk. Rectifier Ballast
43	220Ω	½	BR17C221	BW-½-220	Red-Red-Br. Pilot Light Shunt
56	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Series Phono
57	330KΩ	½		BTS-330K	Or.-Or.-Yl. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	AIR CHIEF PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
44	.024A	1 [illegible]	2 Henries	B-[illegible]726-1	C-[illegible]70††		C-[illegible]675	†Drill new mtg. holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIR CHIEF PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
45	[illegible] CT	[illegible]	2302 CT	.82	B-57[illegible]3-1	A-3856	T22S47†	A-2900†	†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR CHIEF PART No.	JENSEN PART No.	QUAM PART No.	
46	FIELD	VC IMP.				
	PM	3.2Ω	C-57272		6A63	
47	[illegible]" DIA.	VC DIA.				
	6½"x9"	15/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIR CHIEF PART No.	MEISSNER PART No.
48	Loop Ant.	.12	1.72	D-57259	
49	Osc. Coil	2.22	62	B-56143	
50	Input IF	312	222	B-51010-3	16-6658
51	Output IF	292		B-51011-3	16-6670

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR CHIEF PART No.		
52	Bayonet	6-8	0.15	Brown	A-6158		Type 47

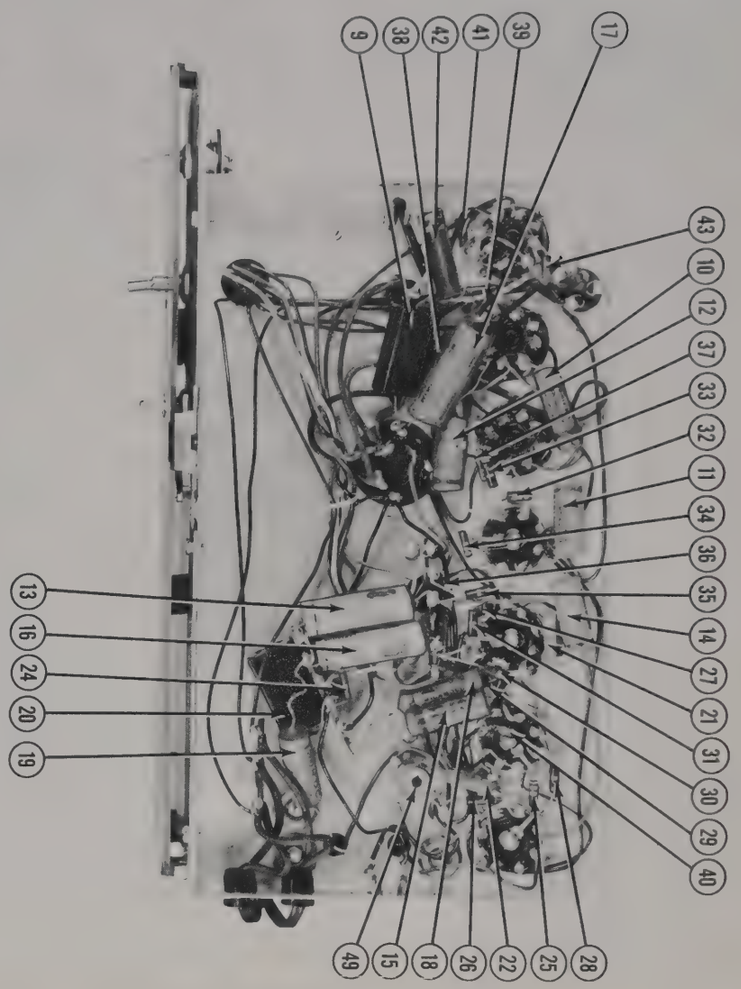
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	AIR CHIEF PART No.	ASTATIC PART No.	
53		L-71-A	L-71 original part.

MISCELLANEOUS

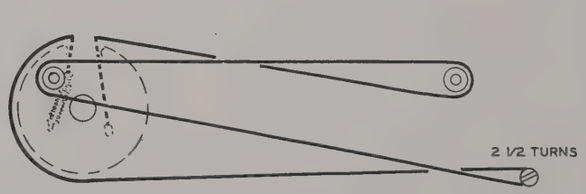
ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
54	Switch	B-56156-1	Radio-Phono
55	2 Gang Var. Cap.	C-57243-1	(31-465MMF, 27-192MMF)
	Dial Scale	B-57269-1	Plastic
	Pointer	B-55130-9	

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove four Phillips head wood screws holding panel over back of chassis. Remove panel from cabinet.
3. Remove phono-pickup plug from chassis.
4. Remove loop antenna plug from chassis.
5. Remove the two screws holding chassis mounting board in cabinet.
6. Slide chassis out bottom of cabinet.
7. Unsolder phono-motor leads.
8. Remove two wood screws holding speaker mounting board in cabinet. Remove mounting board from cabinet.
9. Remove four hex nuts holding speaker to mounting board. Remove speaker from mounting board.



TUNING GANG FULLY CLOSED

DIAL CORD DRIVE

DATE 3/48-#485-7 SET #25-FOLDER #7

RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	11VAC	97VDC	97VDC	-10VDC§	66VDC	-.3VDC	0V.	18VAC
2	7B7	5.8VAC	97VDC	97VDC	0V.	0V.	-.3VDC	0V.	11VAC
3	7C6	5.8VAC	97VDC	-.4VDC	0V.	-.3VDC	-.3VDC	0V.	0V.
4	7C6	18VAC	78VDC	.4VDC	9.4VDC	0V.	8VDC	9.4VDC	24VAC
5	35L6	0V.	24VAC	98VDC	97VDC	0V.	0V.	54VAC	6.8VDC
6	35L6	0V.	54VAC	98VDC	97VDC	0V.	0V.	84VAC	6.8VDC
7	35Z5	0V.	117VAC	113VAC	18VAC	110VAC	113VAC	84VAC	100VDC

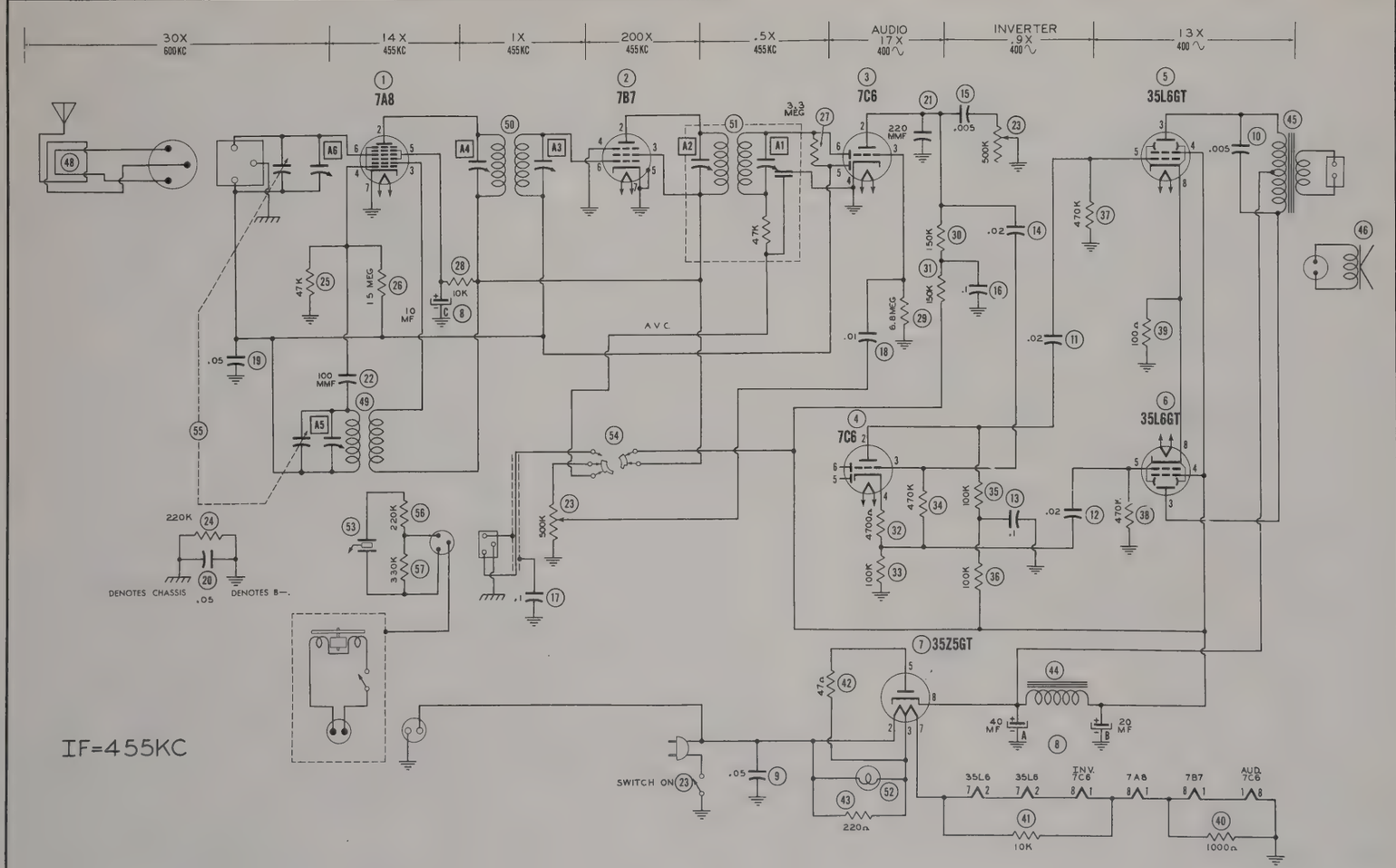
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	14Ω	150KΩ	150KΩ	47KΩ	160KΩ	3.4 MEG.	0Ω	14Ω
2	7B7	7.5Ω	150KΩ	150KΩ	0Ω	0Ω	3.4 MEG.	0Ω	14Ω
3	7C6	7.5Ω	350KΩ	6.8 MEG.	0Ω	3.4 MEG.	550KΩ	0Ω	0Ω
4	7C6	21Ω	350KΩ	570KΩ	105KΩ	INF.	100KΩ	105KΩ	23Ω
5	35L6	INF.	29Ω	150KΩ	150KΩ	470KΩ	0Ω	60Ω	14Ω
6	35L6	INF.	60Ω	150KΩ	150KΩ	470KΩ	0Ω	90Ω	190Ω
7	35Z5	INF.	120Ω	116Ω	21Ω	170Ω	116Ω	90Ω	190Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

DATE 3/48-#485-7 SET #25-FOLDER #7

GENERAL ELECTRIC
MODEL 14

GENERAL ELECTRIC
MODEL 14

GENERAL ELECTRIC MODEL 14

TRADE NAME	General Electric, Model 14
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N.Y.
TYPE SET	AC Operated Record Player with 4 Tube Amplifier
TUBES (FOUR)	Types, 6SC7 AF Amp., 6SQ7 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .31 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SC7	0V.	100VDC	-.6VDC	-.5VDC	85VDC	0V.	3.1VAC	3.1VAC
2	6SQ7	0V.	-.6VDC	0V.	0V.	0V.	80VDC	3.1VAC	3.1VAC
3	6V6GT	0V.	3.1VAC	280VDC	240VDC	0V.	0V.	3.1VAC	12.5VDC
4	5Y3GT	0V.	290VDC	0V.	260VAC	0V.	260VAC	0V.	290VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SC7	0Ω	280KΩ	3 Meg.	3 Meg.	300KΩ	0Ω	.05Ω	.05Ω
2	6SQ7	0Ω	10 Meg.	100Ω	0Ω	0Ω	670KΩ	.05Ω	.05Ω
3	6V6GT	0Ω	.05Ω	200KΩ	200KΩ	470KΩ	470KΩ	.05Ω	330Ω
4	5Y3GT	INF.	200KΩ	INF.	270Ω	INF.	280Ω	INF.	200KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-#485-8 SET #35-FOLDER #8

PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC
MODEL 14

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GEN. ELECT. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	6SC7	6SC7	[illegible]	
2	AF Amp.	6SC7	6SC7	[illegible]	
3	Power Output	6V6GT	6V6GT	TAC	
4	Rectifier	5Y3GT	5Y3GT	ST	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GEN.ELECT. PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	20	350	RCE-041	DY-2x20-450	EL-220	AF44J	UP2235	▲ Filter
B	20	350						■ "
6	10	350	RCE-042	DY-10-450	EL-101	AF2J	UP1045	"
7	.001	1000	RCC-079	TM-16-001	TR-21	1084-001	MD16D1	Output Plate Bypass
8	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
9	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	" "
10	.005	600	RCC-038	S-6-004	TC-24	684-004	DT6D4	Tone Comp.
11	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
12	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Tone Comp.
13	.05	600	UCC-045	S-6-005	TC-15	684-05	DT6S5	Audio Coupling
14	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Tone Compensation
15	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	Audio Coupling

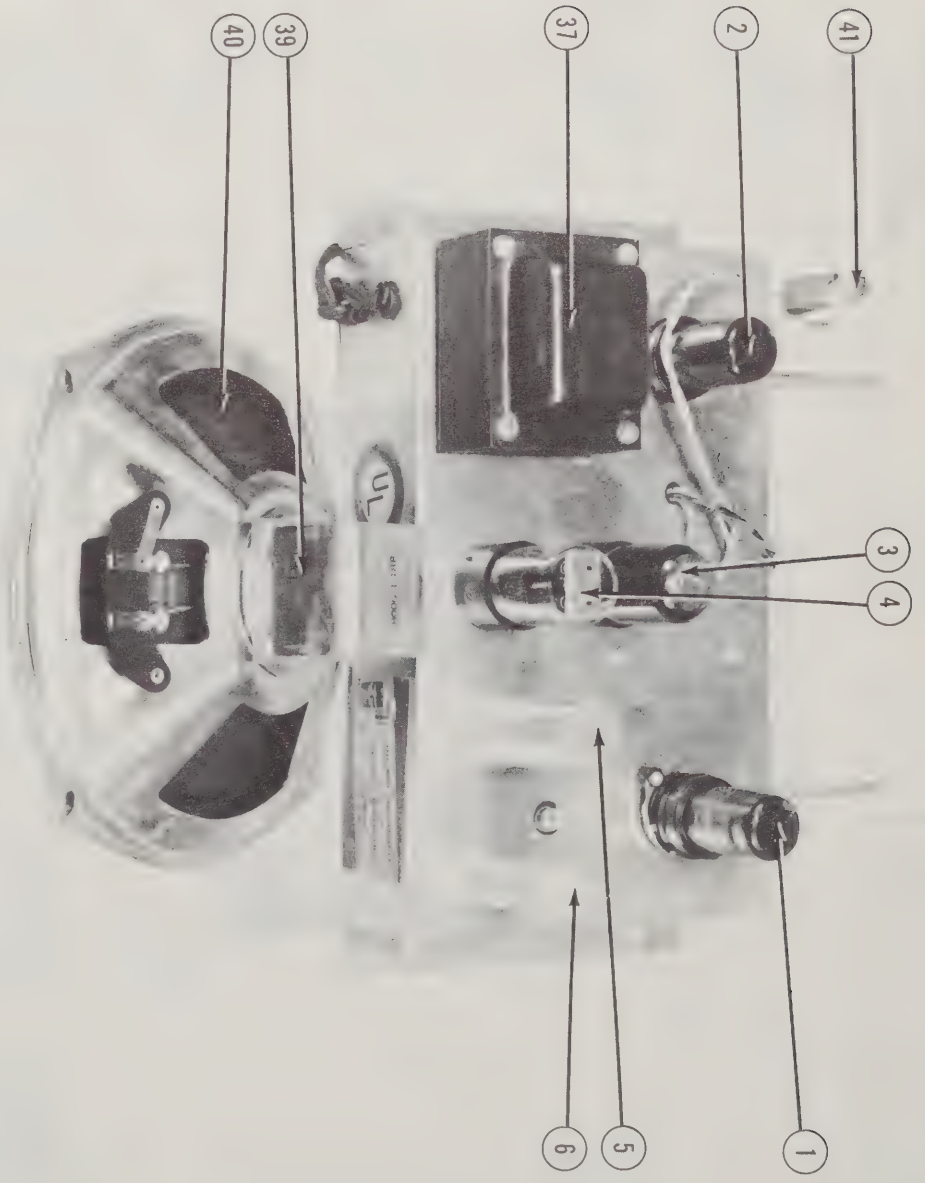
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. ELECT. PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	2 Meg.	½	RRC-038	D18-139X	AT-116	Volume Control tapped @ 1 Meg.
B	Shaft		Not Req.	E	KSS-5	Attach to 16A per instructions
C	Switch		" "	41	SW-A	" " " " "
17A	1 Meg.	½	RRC-039	D18-137	AT-93-Z	Tone Control
B	Shaft		Not Req.	E	KSS-5	Attach to 17A per instruction

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. ELECT. PART No.	IRC PART No.	IDENTIFICATION CODES
18	5600Ω	½	URD-067	BTS-5600	Grn.-Blue-Red Phono Shunt
19	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 1st Phono Amp. Grid
20	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 2nd Phono Amp. Grid
21	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. 1st Phono Amp. Plate Load
22	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. 2nd Phono Amp. Plate Load
23	330KΩ	½	URD-109	BTS-330K	Or.-Or.-Yl. Phono Tone Compensation
24	27KΩ	½	URD-083	BTS-27K	Red-Vi.-Or. Phono Tone Compensation
25	180KΩ	½	URD-103	BTS-180K	Br.-Gray-Yl. Phono Tone Compensation
26	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. Tone Compensation
27	10 Meg.	½	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
28	100Ω	½	URD-025	BW-½-100	Br.-Blk.-Br. AF Cathode
29	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
30	1500Ω	½		BTS-1500	Br.-Grn.-Red Feedback
31	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
32	330Ω	½		BW-½-330	Or.-Or.-Br. Output Cathode
33	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation
34	5600Ω	½	URD-067	BTS-5600	Grn.-Blue-Red " "
35	56KΩ	1	URB-091	BTA-56K	Grn.-Blue-Or. Decoupling
36	10KΩ	1	URB-073	BTA-10K	Br.-Blk.-Or. "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECT. PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
37	117V AC @ .31A	520V CT @ .038A	5.1V AC @ 2.0A	6.2V CT @ 1.6A	RTP-029	P-6297	T22R00	P-2949

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. ELECT. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	4200Ω	3.8Ω	385Ω	.63Ω	RTO-004	A-3877	T22S45	A-2930	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GENERAL ELECTRIC PART No.	JENSEN PART No.	QUAM PART No.	
39	FIELD	VC IMP.	UOP-800	ST-115 Mod. P8-V	8A21	
	PM	3.8Ω				
40	CONE DIA.	VC DIA.	WOX-004			
	7-3/8"	3/4"				

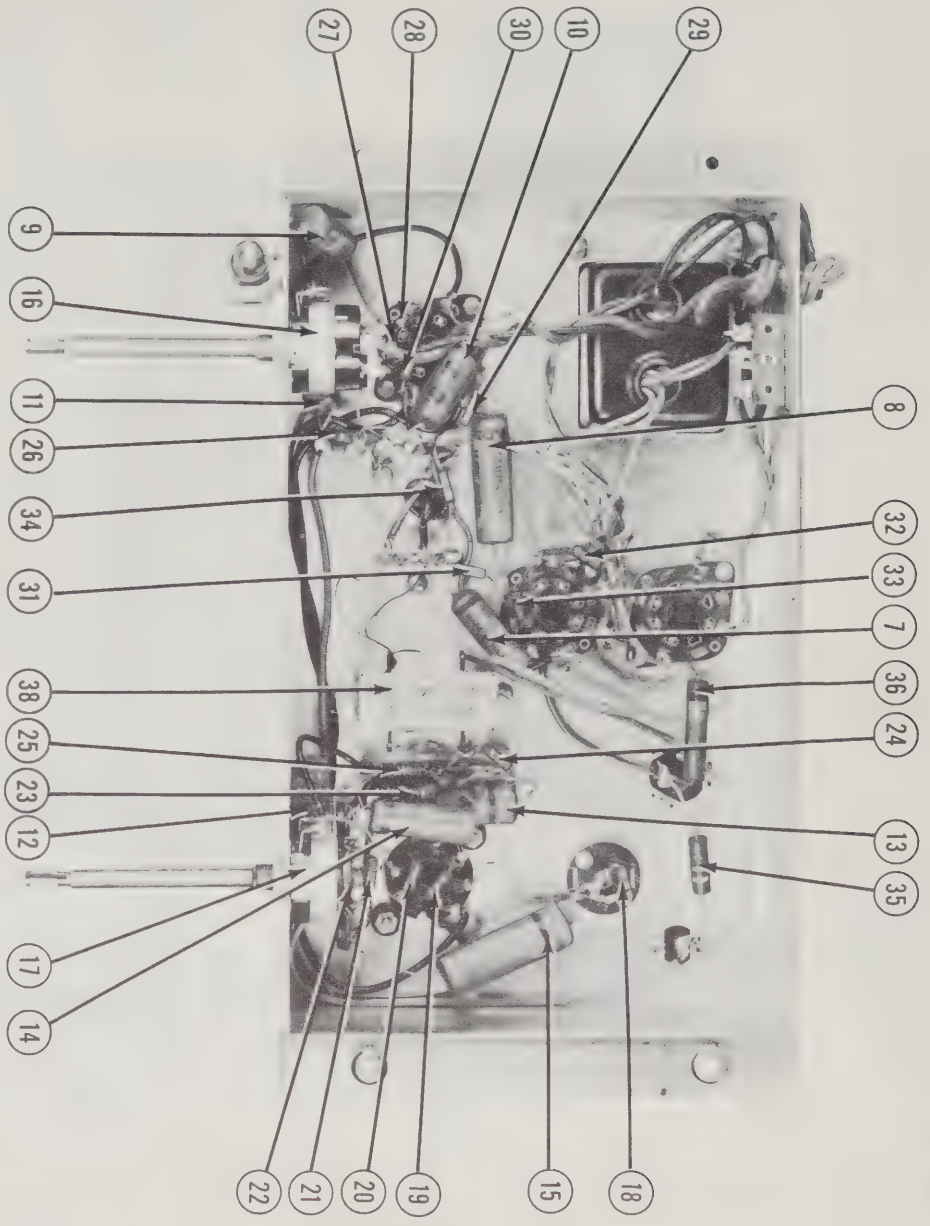
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GEN. ELECT. PART No.		
41	Bayonet	6-8	0.15	Brown	UDL-008		Type 47

MISCELLANEOUS

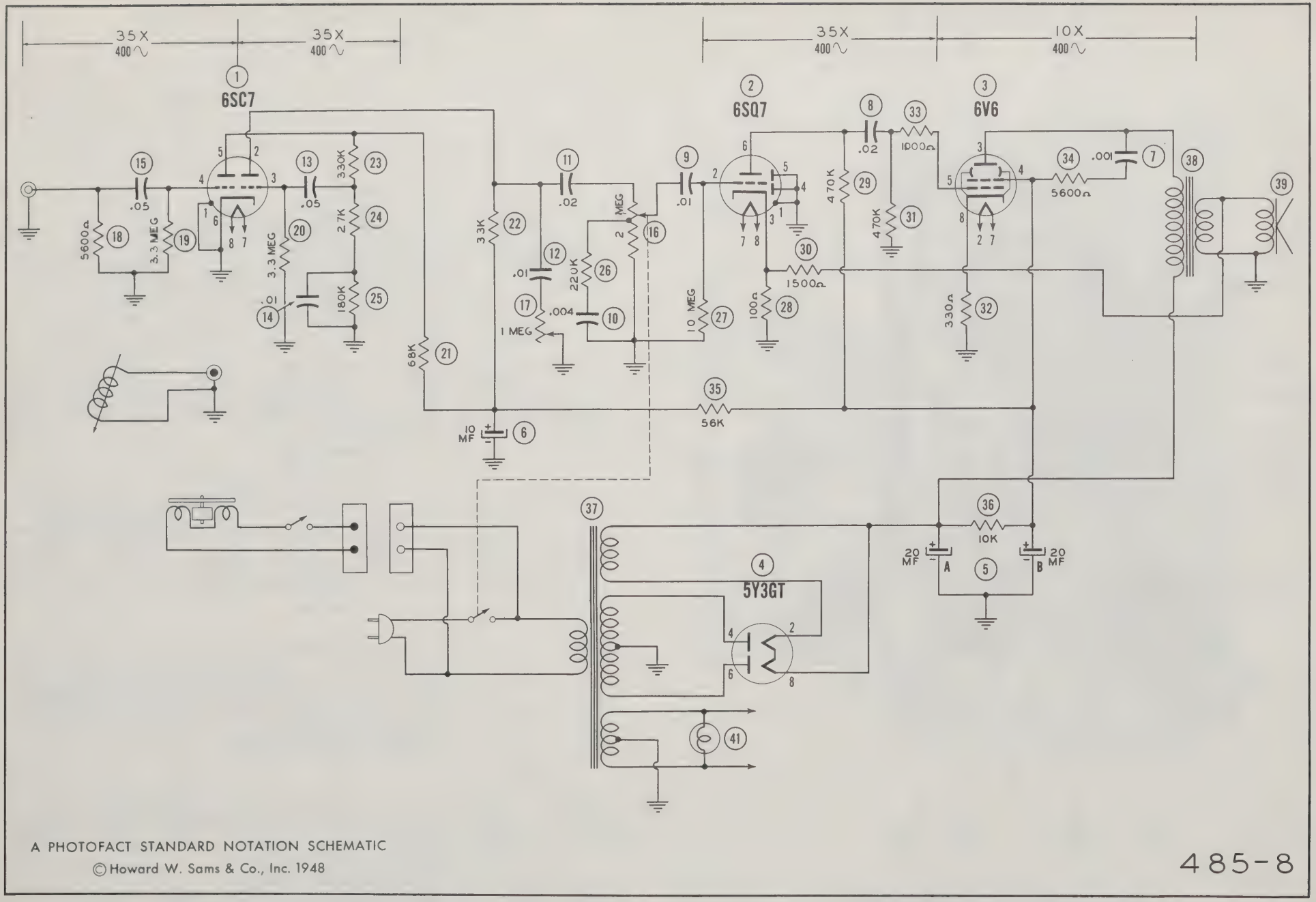
ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
	Knob	RDK-038	Volume and Tone
	Jack	RJP-010	Phono Input

CHASSIS—BOTTOM VIEW



DATE 5/48-#485-8 SHT #3-4 1958 #3

GENERAL ELECTRIC MODEL 14



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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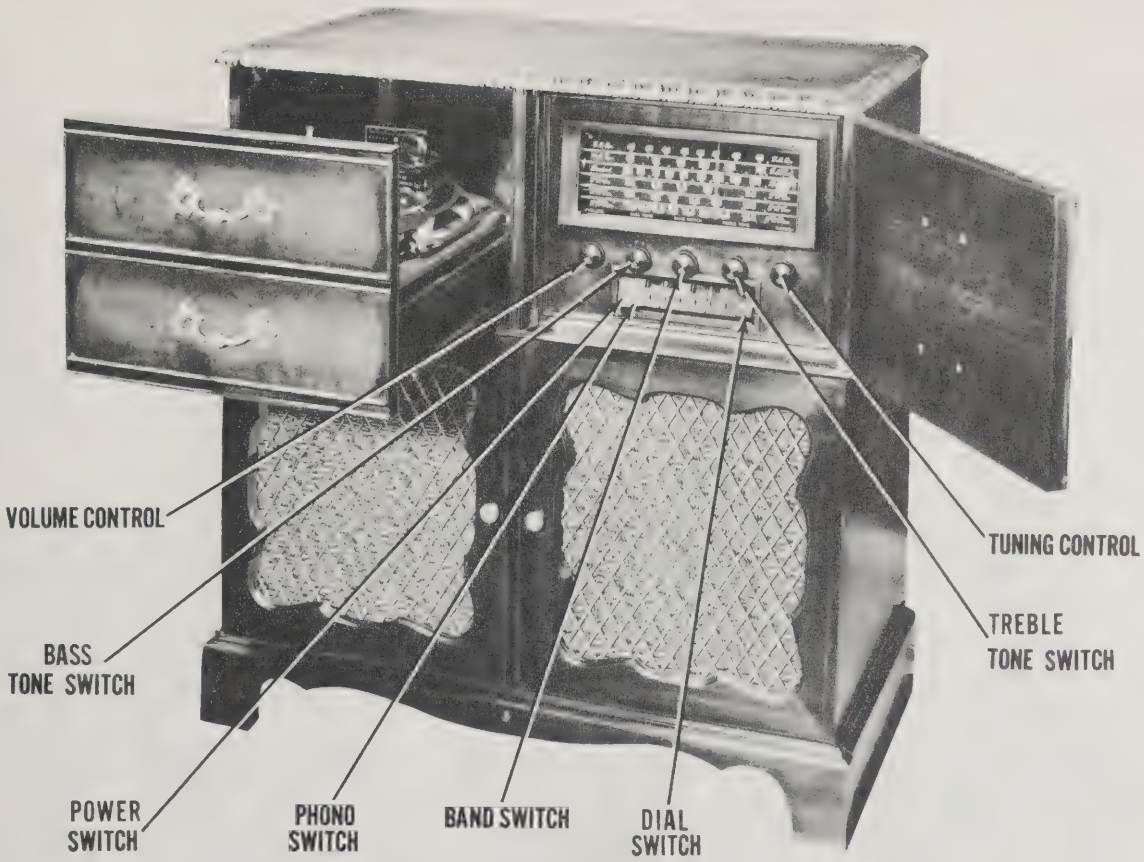
GENERAL ELECTRIC
MODEL 502



GENERAL ELECTRIC MODEL 502

TRADE NAME	General Electric, Model 502
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N.Y.
TYPE SET	AC Operated Combination Phono-Radio Multi-Band AM FM Superheterodyne Receiver
TUBES (FOURTEEN)	Types, 6AG5 RF Amp., 6AK5 Mixer, 6AK5 Osc., 6SG7 IF Amp., 6SV7 IF Amp., 6SV7 AM Det.-FM Limiter, 6AQ7GT FM Disc.-Cathode Follower, 6AL7GT Tuning Indicator, 6SC7 Phono Pre-Amp., 6SQ7 AF Amp., 6J5 Phase Inv., (2) 6V6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	105-125 Volts
RATING	.95 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC, SHORT WAVE 9.4-9.8MC, 11.5-12MC, 14.8-15.5MC
	FREQ. MOD. 42-49MC, 88-108MC

PUSHBUTTON ADJUSTMENTS

Range of pushbuttons reading from left to right are 540-1050KC, 540-1050KC, 540-1050KC, 850-1520KC, 850-1520KC, 1000-1600KC.

Make up a list of stations desired to be set up. Ranging from low to high freq. stations, making certain each station falls within range of its button.

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Depress dial button and tune in first station.
3. Depress left station selector button and adjust B1 to tune in station.
4. Adjust B2 for maximum volume.
5. To set up the remaining buttons follow same procedure outline above, adjusting B3, B5, B7, B9 and B11 to tune in station and B4, B6, B8, B10 and B12 for maximum volume.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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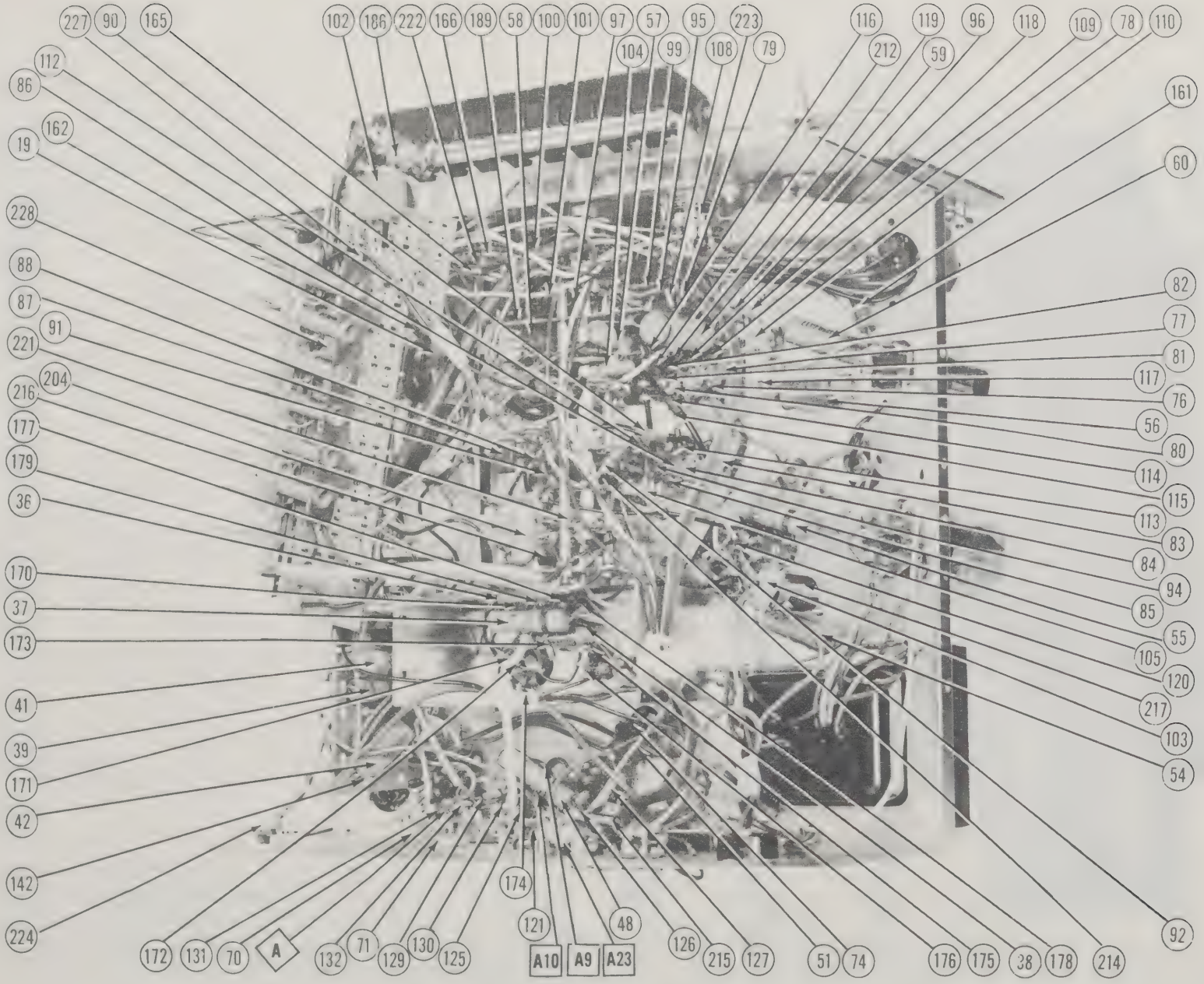
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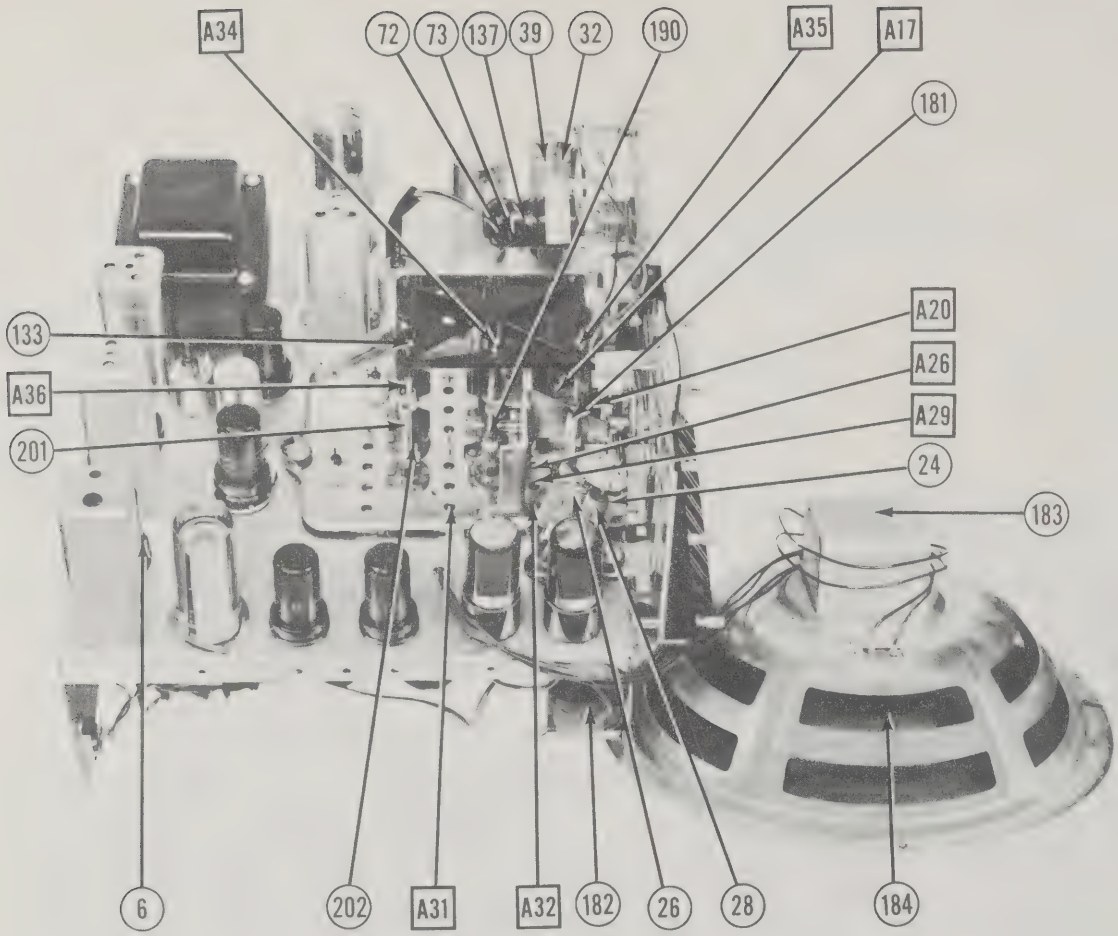
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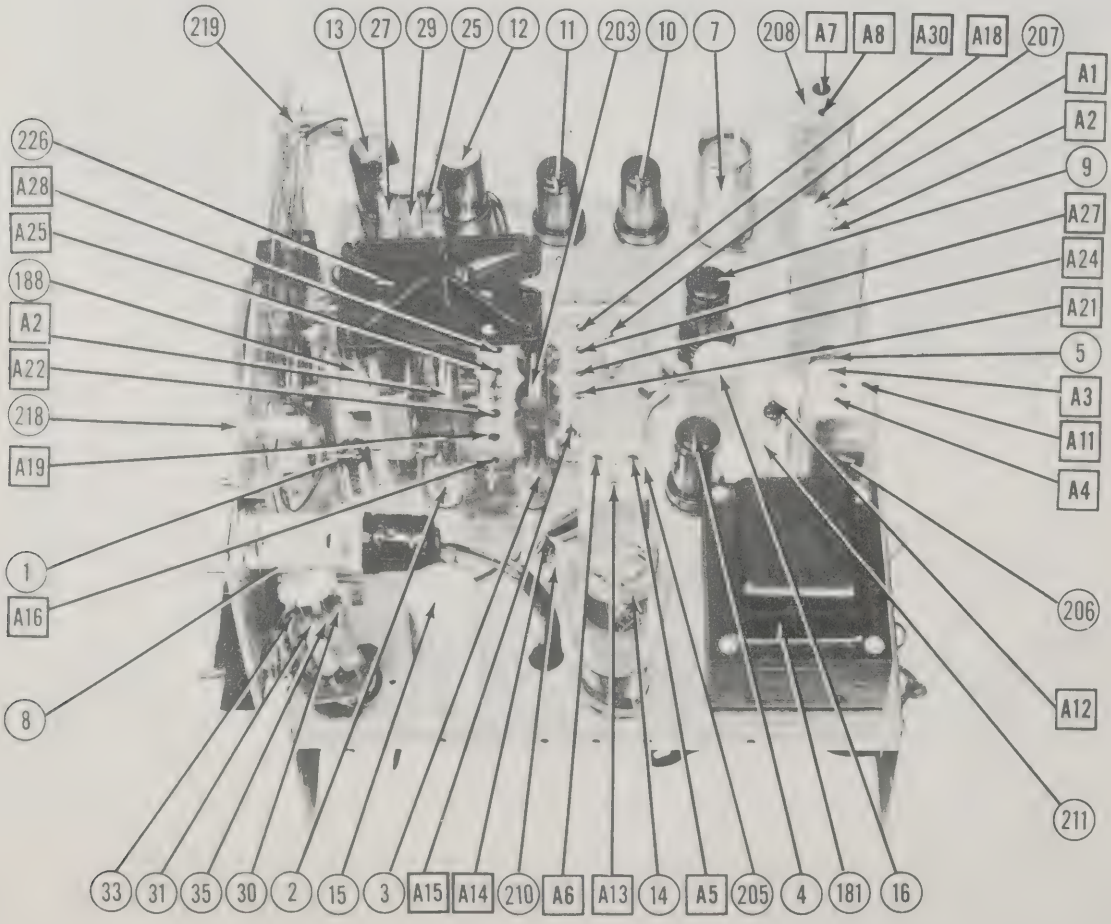
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GEN. ELECT. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6AG5	6AG5	7BD	
2	Mixer	6AK5	6AK5	7BD	
3	Oscillator	6AK5	6AK5	7BD	
4	IF Amp.	6SG7	6SG7	8BK	
5	IF Amp.	6SV7	6SV7	7AZ	
6	AM Det.-FM Lim.	6SV7	6SV7	7AZ	
7	FM Disc.-Cath. Follower	6AQ7GT	6AQ7GT	8CK	
8	Tuning Indicator	6AL7GT	6AL7GT	8CH	
9	Phono Pre-Amp.	6SC7	6SC7	8S	
10	Audio Amp.	6SQ7	6SQ7	8Q	
11	Phase Inv.	6J5	6J5	6Q	
12	Power Output	6V6GT	6V6GT	7AC	
13	" "	6V6GT	6V6GT	7AC	
14	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GEN. ELECT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
15A	30	450	RCE-014	DY-403	EL-424	AF862J4A	UP431450	■ Filter
B	30	450						▲ "
C	15	450						▲ "
D	20	25						Output Cathode
16A	15	350	RCE-002	DY-2x20-450	EL-220	AF44J	UP15D35	▲ Filter
B	15	350						■ "
17	.002	1000	RCC-056	TM-16-002	TR-22	1084-002	MD16D2	Output Plate Bypass
18	.002	1000	RCC-056	TM-16-002	TR-22	1084-002	MD16D2	" " "
19	.002	1000	RCC-056	TM-16-002	TR-22	1084-002	MD16D2	" " "
20	.05	600	RCC-045	S-6-05	TC-15	684-05	DT6S5	Audio Coupling
21	.05	600	RCC-045	S-6-05	TC-15	684-05	DT6S5	" "
22	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	" "
23	.005	600	UCC-039	S-6-005	TC-25	684-005	DT6D5	" "
24	.03	600	UCC-042	S-6-03	TC-13	684-03	DT6S3	Tone Comp.
25	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	" "
26	.03	600	UCC-042	S-6-03	TC-13	684-03	DT6S3	" "
27	.03	600	UCC-042	S-6-03	TC-13	684-03	DT6S3	" "
28	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	" "
29	.03	600	UCC-042	S-6-03	TC-13	684-03	DT6S3	" "
30	.002	600	UCC-036	S-6-002	TC-22	684-002	DT6D2	" "
31	.004	600	RCC-038	S-6-004	TC-24	684-004	DT6D4	" "
32	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	" "
33	.002	600	UCC-036	S-6-002	TC-22	684-002	DT6D2	" "
34	.004	600	RCC-038	S-6-004	TC-24	684-004	DT6D4	" "
35	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	" "
36	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
37	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	" "
38	.003	600	UCC-037	S-6-003	TC-23	684-003	DT6D3	Tone Compensation
39	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
40	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Cath. Follower Plate Bypass
41	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	Audio Coupling
42	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	Tuning Ind. Filter
43	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Limiter Decoupling
44	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Squelch Coupling
45	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Limiter Screen Bypass
46	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	RF Bypass Pwr. Supply
47	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Squelch Filter
48	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	2nd IF Plate Decoup.
49	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	2nd IF Screen Bypass
50	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	2nd IF Cathode Bypass
51	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	1st IF Plate Decoup.
52	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	1st IF Screen Bypass
53	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	1st IF Cathode Bypass
54	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	AVC Filter
55	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	Mixer Plate Decoup.
56	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	Mixer Screen Bypass
57	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	RF Bypass Power Supp.

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GEN. ELECT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
58	.02	600	UCC-041	S-6-02	TC-12	684-02	DT6S2	RF Plate Decoupling
59	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	AVC Filter
60	.05	600	UCC-045	S-6-05	TC-15	684-05	DT6S5	RF Screen Decoupling
61	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Filament Bypass
62	47		UCU-020	MO.5-45	1FM-45	1468-00005	5W5Q5	AF Plate Bypass
63	33		UCU-516	MO.5-43	1FM-43	1468-00003	5W5Q3	Tone Comp.
64	33		UCU-516	MO.5-43	1FM-43	1468-00003	5W5Q3	RF Bypass
65	100		UCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	" " - Cer.
66	100		UCU-528	MO.5-31	1FM-31	1468-0001	5W5T1	De-emphasis
67	33		UCU-516	MO.5-43	1FM-43	1468-00003	5W5Q3	RF Bypass
68	100		UCU-028	MO.5-31	1FM-31	1468-0001	5W5T1	" "
69	47		UCU-520	MO.5-45	1FM-45	1468-00005	5W5Q5	Limiter Plate Decoup.
70	27		UCU-1014	MO.5-43	1FM-43	1468-00003	5W5Q3	Diode RF Filter
71	27		UCU-1014	MO.5-43	1FM-43	1468-00003	5W5Q3	" " "
72	100		RCW-1028					Tuning Ind. Bypass-Cer.
73	100		RCW-1028					" " " -Cer.
74	27		UCW-1014	MO.5-43	1FM-43	1468-00003	5W5Q3	Fixed Trimmer-Cer.
75	220		UCU-536	MO.5-32	1FM-32	1468-0002	5W5T2	IF Coupling
76	27		UCW-1014	MO.5-43	1FM-43	1468-00003	5W5Q3	Mixer Plate Bypass-Cer.
77	470		UCU-544	MO.5-35	1FM-35	1468-0005	5W5T5	Mixer Screen Bypass
78	100		RCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	Filament Bypass-Cer.
79	100		RCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
80	4.7		RCW-025					RF Coupling-Cer.
81	100		RCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
82	22		UCW-012	MO.5-42	1FM-42	1468-00002	5W5Q25	" " "
83	470		UCU-544	MO.5-35	1FM-35	1468-0005	5W5T5	Osc. Plate Bypass
84	22		RCW-024	MO.5-42	1FM-42	1468-00002	5W5Q25	Osc. Cath. Bypass-Cer.
85	4.7		RCW-025					Osc. Grid Cap.-Cer.
86	47		RCW-001	MO.5-45	1FM-45	1468-00005	5W5Q5	" " " -Cer.
87	22		UCU-1512	MO.5-42	1FM-42	1468-00002	5W5Q25	Osc. Coupling-Cer.
88	10		UCU-1504	MO.5-41	1FM-41	1468-00001	5W5Q1	Osc. Coupling
89	4.7		UCN-505					" " -Cer.
90	180		UCG-3034					Fixed Trimmer
91	10		UCW-1004	MO.5-41	1FM-41	1468-00001	5W5Q1	Fixed Padder-Cer.
92	68		UCW-1024					Fixed Trimmer-Cer.
93	10		UCW-1004	MO.5-41	1FM-41	1468-00001	5W5Q1	Osc. Coupling-Cer.
94	1.5		UCN-502					" " - "
95	100		RCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling-Cer.
96	820		UCN-1550					RF Screen Bypass
97	6.8		UCN-506					RF Coupling-Cer.
98	150		UCU-1532	MO.5-315	1FM-315	1468-00015	5W5T15	Fixed Trimmer
99	27			MO.5-43	1FM-43	1468-00003	5W5Q3	RF Bypass-Cer.
100	100		RCW-1028	MO.5-31	1FM-31	1468-0001	5W5T1	" "
101	6.8		UCN-506					RF Coupling-Cer.
102	680		RCC-044					Fixed Trimmer
103	100		UCU-028	MO.5-31	1FM-31	1468-0001	5W5T1	FM Line Ant. Coupling
104	47			MO.5-45	1FM-45	1468-00005	5W5Q5	RF Coupling
105	470			MO.5-35	1FM-35	1468-0005	5W5T5	Fixed Trimmer
227	5.3		UCW-1504	MO.5-55	MS-55	1468-000005	5W5V5	Osc. Coupling-Cer.
228	10		UCW-1004	MO.5-41	1FM-41	1468-00001	5W5Q1	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. ELECT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
106	Dual 2 Meg.	½	RRC-019			Volume Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	IRC PART No.	IDENTIFICATION CODES
107	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Antenna Loading
108	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. RF Grid
109	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red RF Screen Decoupling

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GEN. ELECT. PART No.	IRC PART No.	
110	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
111	10KΩ	1	URE-073	BTA-10K	Br.-Blk.-Or. RF Plate Decoupling
112	33Ω	½	URD-013	BW-½-33	Or.-Or.-Blk. Parasitic Suppressor
113	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Oscillator Grid
114	220Ω	½	URD-033	BW-½-220	Red-Red-Br. Oscillator Plate Decoupling
115	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. Oscillator Coupling
116	47KΩ	1	URE-089	BTA-47K	Yl.-Vi.-Or. Bleeder
117	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. Converter Screen Dropping
118	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. Converter Grid
119	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
120	47K	½	URD-077	BTS-47K	Br.-Grn.-Or. Converter Plate Decoupling
121	100K	½	URD-103	BTS-180K	Br.-Gray-Yl. 1st IF Grid
122	220Ω	½	URD-033	BW-½-220	Red-Red-Br. 1st IF Cathode
123	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. 1st IF Screen Dropping
124	2200Ω	½	URD-057	BTS-2200	Red-Red-Red 1st IF Plate Decoupling
125	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
126	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. " "
127	470Ω	½	URD-041	BTS-470	Yl.-Vi.-Br. 2nd IF Cathode
128	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. 2nd IF Screen Dropping
129	2200Ω	½	URD-057	BTS-2200	Red-Red-Red 2nd IF Plate Decoupling
130	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. Limiter Grid
131	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. " "
132	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. Diode Filter
133	82KΩ	½	URD-095	BTS-82K	Gray-Red-Or. Limiter Screen Dropping
134	82KΩ	½	URD-061	BTS-82K	Red-Red-Or. Limiter Plate Decoupling
135	2200Ω	½	URD-057	BTS-2200	Red-Red-Red Limiter Plate Decoupling
136	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Squelch Diode Load
137	10KΩ	½	URD-073	BTS-10K	Br.-Blk.-Or. Squelch Coupling
138	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. Audio Coupling
139	3300Ω	½	URD-061	BTS-3300	Or.-Or.-Red Tuning Indicator Cathode
140	10KΩ	½	URD-073	BTS-10K	Br.-Blk.-Or. De-emphasis
141	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. "
142	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Indicator Net.
143	120KΩ	½	URD-099	BTS-120K	Br.-Red-Yl. Disc. Diode Load
144	120KΩ	½	URD-099	BTS-120K	Br.-Red-Yl. Disc. Diode Load
145	2700Ω	1	URD-059	BTS-2700	Red-Vi.-Red 1st AF Cathode
146	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. 1st AF Cathode
147	1.2 Meg.	½	URD-123	BTS-1.2 Meg.	Br.-Red-Grn. 1st AF Grid
148	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation
149	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Tone Compensation
150	680KΩ	½	URD-117	BTS-680K	Blue-Gray-Yl. 2nd AF Plate Load
151	6.8 Meg.	½	URD-141	BTS-6.8 Meg.	Blue-Gray-Grn. 2nd AF Grid
152	220Ω	½	URD-009	BW-½-22	Red-Red-Blk. 2nd AF Cathode
153	1.2 Meg.	½	URD-123	BTS-1.2 Meg.	Br.-Red-Grn. Phase Inverter Grid
154	39KΩ	½	URD-1086	BTS-39K	Or.-Blue-Or. Phase Inverter Plate Load
155	2700Ω	½	URD-059	BTS-2700	Red-Vi.-Red Phase Inverter Cathode
156	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. Phase Inverter Cathode
157	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Parasitic Suppressor
158	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red " "
159	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
160	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
161	220Ω	2	URD-033	BW-2-220	Red-Red-Br. Output Cathode
162	8200Ω	1	URE-071	BTA-8200	Gray-Red-Red Tone Compensation
163	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Feedback
164	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Tone Compensation
165	330KΩ	½	URD-109	BTS-330K	Or.-Or.-Yl. " "
166	330KΩ	½	URD-109	BTS-330K	Or.-Or.-Yl. " "
167	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. " "
168	18KΩ	2	URF-079	BT-2-18K	Br.-Gray-Or. Bleeder
169	18KΩ	2	URF-079	BT-2-18K	Br.-Gray-Or. "
170	6800Ω	½	URD-069	BTS-6800	Blue-Gray-Red Phono Shunt
171	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 1st Phono Amp. Grid
172	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 2nd Phono Amp. Grid
173	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. 1st Phono Amp. Plate Load
174	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. 2nd Phono Amp. Plate Load
175	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. 1st Phono Amp. Plate Decoupling
176	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. 2nd Phono Amp. Plate Decoupling
177	680KΩ	½	URD-117	BTS-680K	Blue-Gray-Yl. Tone Compensation
178	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. " "
179	680KΩ	½	URD-117	BTS-680K	Blue-Gray-Yl. " "
180A	1.2MΩ	½	ARW-084	AB-1250	Filter
B	400Ω	½		AB-500	"

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECT. PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
181	117V AC @ .95A	620V CT @ .13A	5.1V AC @ 3.0A	6.4V AC @ 3.0A SEC. 4 6.3V CT @ .3A	RTP-033		T22R33#	

#Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. ELECT. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
182	3400Ω CT	3.6Ω	310Ω CT	.5Ω	RTO-014	A-2670	T22S07*	A-2905*	*Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GEN. ELECT. PART No.	JENSEN PART No.	QUAM PART No.	
183	FIELD PM	VC IMP. 8.6Ω	UOP-1230	ST-101 Mod. P12-T	12A6	
184	CONE DIA. 11-7/8"	VC DIA. 1-1/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GEN. ELECT. PART No.	MEISSNER PART No.	
185A	Loop Ant.			RAB-026		50∿ model
B	" "		.2Ω	RAB-025		60∿ model
186	BC PB Ant.	40Ω-.2Ω	3Ω	RLA-006		
187	BC Ant.Coil	.5Ω	6Ω	RLA-009		Items 187, 188, 190, 192, 201 and 203
188	FM " "		0Ω			are part of tuning assembly.
189	SW Loop Shunt Coil		0Ω	RLI-018		
190	BC RF Coil	.5Ω	6Ω	RLB-006		
191	BC RF Pri. Dummy	1Ω		RLB-009		
192	FM RF Coil		0Ω			
193	SW RF Coil		0Ω	RLC-017		
194	SW RF Plate Choke		1Ω	RLB-008		
195	BC Osc.Coil		.5Ω	RLA-025		
196	" " "		.5Ω	RLA-025		
197	" " "		.5Ω	RLA-025		
198	" " "		1Ω	RLA-026		
199	" " "		1Ω	RLA-026		
200	" " "		1Ω	RLA-026		
201	BC Osc. Shunt Coil		3.5Ω	RLC-014		
202	BC Osc.Coil		3.5Ω	RLC-016		
203	FM Osc.Coil		0Ω			
204	SW Osc.Coil		0Ω	RLC-015		
206A	AM Input IF	5Ω†	1.5Ω	RTL-017		†Includes FM primary
B	FM " "		.1Ω	RTL-017		
206A	AM Inter.IF	5Ω	5Ω	RTL-022		
B	FM " "	.2Ω	.2Ω	RTL-022		
207A	AM Output IF	8Ω†	8.5Ω	RTL-019		†Includes FM primary
B	FM " "		.1Ω	RTL-019		
208	Disc. Trans.	1Ω	1Ω	RTD-001		
209	IF Fil. Chk.		.1Ω	RIF-007		
210	IF Plate "		.3Ω	RLP-005		
211	" " "		.3Ω	RLP-005		

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA GEN. ELECT PART No.	REPLACEMENT DATA MEISSNER PART No.
212	FM RF Plate Choke		.8Ω	RLP-008	
213	IF Wave Trap		.8Ω	RLP-008	
214	Osc. Cath. Choke		.1Ω	RLI-005	
215	FM Ant. Chk.		.1Ω	RLA-012	
216	Osc. Cath. Chk.		.1Ω	RLA-012	
217	Power Line Chk.		0Ω	RLI-002	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA GEN. ELECT. PART No.	REPLACEMENT DATA	INSTALLATION NOTES
219&219	Bayonet	6-8	0.25	Blue	UDL-005		Type 44
220	"	6-8	0.15	Brown	UDL-008		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
221	Switch	RSW-029	Band
222	"	RSW-017	Bass
223	"	RSW-016	Treble
224	"	RSS-003	Squelch
225	"	RDX-019	Pushbutton Assby.
226	Tuning Assby.	RMX-021	
	Trimmer Strip	RCY-017	A15, A18
	" "	RCX-021	A16, A19, A22
	" "	RCX-024	A17, A20
	" "	RCX-025	A21, A24, A27, A30
A23	Trimmer	RCY-011	BC Ant. Adj.
	Trimmer Strip	RCX-026	A25, A28, A31
	" "	RCX-208	A26, A29, A32
	" "	RCX-012	B2, B4, B6, B8, B10, B12
	Pointer Assby.	RDP-026	
	Dial Scale	RDS-021	

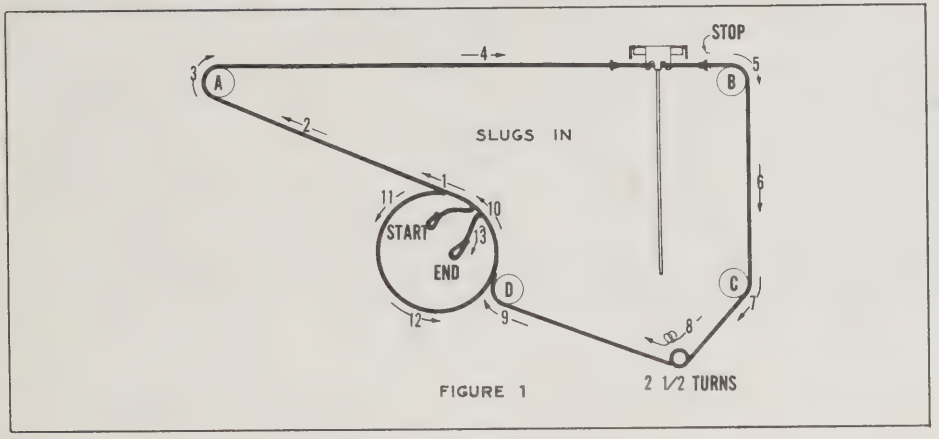
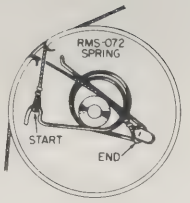


FIGURE 1



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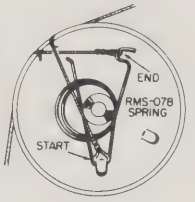


2

Dial Stringing

Push the tuning elevator all the way down and string the dial as shown in Figure 1. Notice that the dial cord, in progressive steps 9, 10, 11 and 12 is made to travel behind the start and end of cord stringing. The procedure will be easier if pulley C is by-passed until the rest of the work is finished after which the cord can be pulled tight over that pulley. During the procedure, locate the two brass eyelets so that they fall between pulleys A and B. When finished, crimp the eyelets on the cord in the proper positions to act as minimum and maximum stops for the tuning mechanism. Insert pins through the cord and glue to prevent eyelets from moving. Clip the pointer on the cable halfway between the eyelets.

If the cord and spring are to be replaced, the Type 1 spring should be used, It fits the same drum and is an improved type. The Type 2 spring should be used with the later type of drum (with two tabs). When stringing the mechanism with either the Type 1 or Type 2 spring, load the spring by pulling the hook over the projection at the other end of the spring, string the dial and, as a final step, release the hook so that it pulls up the slack in the dial cord.

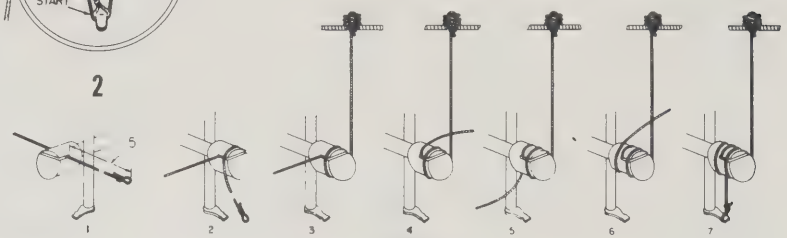


FIGURE 2
Elevator Windlass Stringing Procedure

Elevator Stringing

Start by inserting the metallic cord in slot as shown in Step 1. Observe that the cord is measured five inches from end of loop to where it enters the slot. Now bring the loop end around the pulley counterclockwise, as in Step 2. Next, thread loop through hole in elevator top plate, fastening it to the hoist cord tension spring, as viewed in Step 3. Steps 4, 5, 6 and 7 show how the free end of cord progresses on the pulley, going clockwise and that each turn is laid progressively one in back of the other and in back of the vertical section, going to the tension spring in tuner plate. In Step 6, pass the free end of cord down through the hole in chassis, grasping its end with long-nosed pliers and drawing tension on cord while running elevator completely down to the bottom. Keeping tension on cord and forcing large dial drive drum so that hoist cord spring is compressed, complete Step 7 making a one turn loop of the cord's free end around the lug shown on end of elevator shaft, and solder.

Concluding Comments

After replacing the dial cord or the elevator cord, it may be found that some correction in relative positioning is needed. This can be done by loosening the setscrews in the large drive pulley directly behind the dial scale and repositioning it on the shaft. The object, of course, is to permit the tuning control to drive the elevator through its full tuning range. Slight errors in final setting are not serious since leeway is provided in the location of the dial pointer itself.

DATA 4/15-#15-2 SET #35-FOLDER #9

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn pointer to extreme right hand position. Mark the position of right edge of pointer saddle. Use this reference mark in Steps below.

When connecting sig. gen. to converter grid a shielded lead must be used with not more than a 1/16" of bare lead exposed. Ground connection should be connected as close to high side as possible.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM IF ALIGNMENT

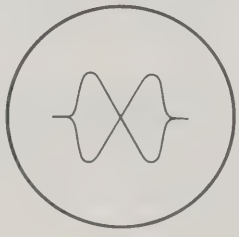
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	Direct	High side to Pin 1 (grid) 6AK5 converter tube (2). Low side to chassis.	455KC (400 modulation.)	Std. (2 positions clockwise)	Tuning slugs out completely.	Across voice coil	A1, A2, A3, A4, A5, A6.	Adjust for maximum output.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If VTVM is not available a 20,000Ω per volt DC voltmeter may be used as an output indicator. In Step 4 the 200KΩ resistor should be connected directly to the grid (preferable soldered) so that capacity loading will be negligible and so that meter is isolated from IF signal. Attenuate signal generator output to maintain a maximum meter reading of 1 volt.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2	.01 MFD.	High side to Pin 2 (grid) 6SV7 FM Limiter Tube (6). Low side to chassis.	10.7MC (unmodulated)	FM 1 (fully counter clockwise)	Tuning slugs out completely.	DC probe to Point B. Common lead to chassis.	A7	Adjust for zero deflection.
3	.01 MFD.	"	Detune for maximum deflection.	"	"	"	A8	Adjust for maximum deflection.
4	.01 MFD.	High side to Pin 2 (grid) 6SV7 Tube (5). Low side to chassis.	10.7MC (unmodulated)	"	"	DC probe of VTVM in series with 200K resistor to Pin 2 (grid) of 6SV7 Tube (6). Common lead to chassis	A9, A10	Adjust for maximum deflection with 6AQ7 tube removed from socket.
5	.01 MFD.	High side to Pin 4 (grid) 6SG7. Low side to chassis.	"	"	"	"	A11, A12	"
6	Direct	High side to Pin 1 (grid) 6AK5 converter tube (2). Low side to chassis.	"	"	"	"	A13, A14	Adjust for maximum deflection with 6AQ7 tube removed from socket. Replace 6AQ7 tube.
7	Direct	Across dipole terminals	108MC	FM 1 (one position clockwise)	Set right edge of pointer saddle 3-9/16 inch from reference mark at right end of dial backplate.	"	A15	Loosen A15 completely and adjust for first peak. Adjust for maximum deflection.
8	Direct	"	"	"	Tune for maximum deflection.	"	A16	Rock tuning control and adjust for maximum deflection.
9	Direct	"	"	"	Do not change from last Step.	"	A17	Adjust for maximum deflection.
10	Direct	"	108MC	FM 1 (fully counter clockwise)	Set right edge of dial pointer saddle 3-1/4" from reference mark at right end of dial backplate.	"	A18	Loosen A18 completely then adjust for maximum deflection on first peak.
11	Direct	"	"	"	Tune for maximum deflection.	"	A19	Rock tuning control and adjust for maximum deflection.
12	Direct	"	"	"	Do not change from last step.	"	A20	Adjust for maximum deflection.

PATTERN A



PATTERN B

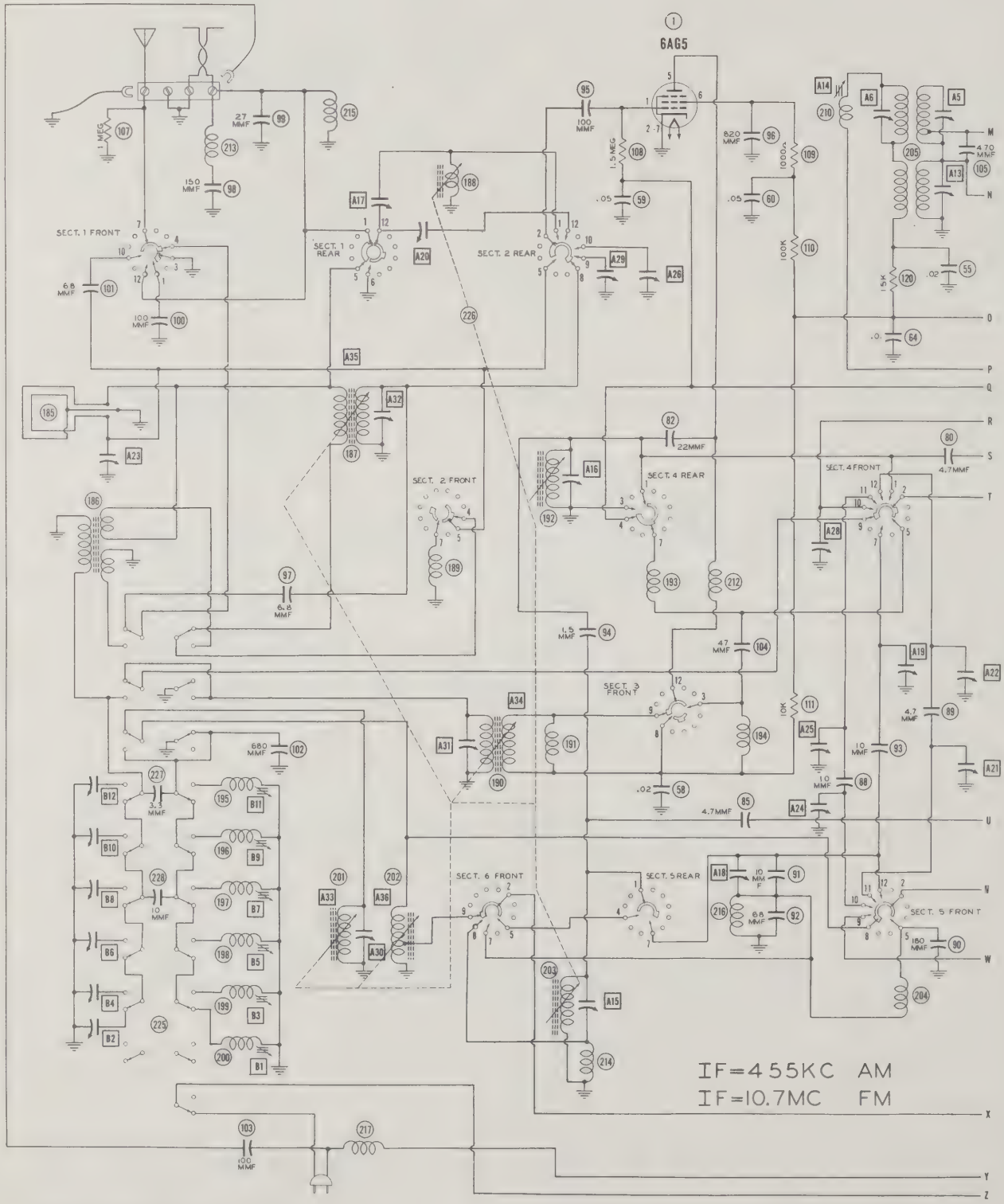
FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
2	.01 MFD	High side to Pin 1 (grid) 6AK5 converter tube (2). Low side to chassis.	10.7MC (Freq. Mod.)	FM 2 (1 position clockwise)	High freq. end of dial.	Vertical input to Point A. Ground to chassis.	A14,A13 A12,A11 A10,A9	Remove 6AQ7 Tube from socket. Adjust for symmetry, coincidence and maximum amplitude of Pattern A.
3	.01 MFD	"	"	"	"	Vertical input to Point B. Ground to chassis.	A7,A8	Replace 6AQ7 tube. Adjust A7 & A8 alternately for maximum height and straightness of crossover lines with crossover occuring at center of pattern as in Pattern B.
4	Direct	Across dipole terminals.	46MC	"	Set right edge of pointer saddle 3-9/16 inch from reference mark at right end of dial.	Vertical input to Point A. Ground to chassis.	A15	Remove 6AQ7 tube from socket. Adjust for coincidence per Pattern A.
5	Direct	"	"	"	Tune for coincidence.	"	A16	Rock tuning control for coincidence and adjust A16 for maximum amplitude.
6	Direct	"	"	"	Do not change	"	A17	Adjust for max. amplitude.
7	Direct	"	46MC	FM 1 (fully counter clockwise)	Set right edge of pointer saddle 3-1/4" from reference mark at right end of dial.	"	A18	Adjust for coincidence.
8	Direct	"	"	"	Tune for coincidence.	"	A19	Rock tuning control for coincidence and adjust A19 for maximum amplitude.
9	Direct	"	"	"	Do not change.	"	A20	Adjust for maximum amplitude. Replace 6AQ7 tube. Continue with Step 13.

AM RF ALIGNMENT

Use a freq. modulated signal 450KC sweep with 60~ modulation. Use 120~ sawtooth voltage in scope for horizontal deflection plates.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
13	400Ω carbon res.	High side to ext. ant. terminal. Low side to chassis.	15.2MC (400 modulation)	SW 3 (fully clockwise)	Set right edge of pointer saddle 3-3/4" from reference mark at right end of dial backplate.	Across voice coil	A21	Adjust for maximum output. Turn sig. gen. to approx. 16.1MC. If signal is not heard retune sig. gen. to 15.2MC and loosen A21 to the next peak. Adjust for maximum output and recheck for image.
14	"	"	"	"	Do not change	"	A22	Rock tuning control and adjust for maximum output.
15	"	"	"	"	"	"	A23	Adjust for maximum output.
16	"	"	11.8MC	SW 2 (2nd position clockwise)	Set right edge of pointer saddle 3-3/8" from reference mark at right edge of dial backplate.	"	A24	Adjust for maximum output. Tune sig. gen. to approx. 12.7MC. If signal is not heard retune sig. gen. to 11.8MC and loosen A24 to next peak. Adjust for maximum output and recheck for image.
17	"	"	"	"	Do not change.	"	A25	Rock tuning control and adjust for maximum output.
18	"	"	"	"	"	"	A26	Adjust for maximum output.
19	"	"	9.6MC	SW 1 (3rd position clockwise)	Set right edge of pointer saddle 4" from reference mark at right edge of dial backplate.	"	A27	Adjust for maximum output. Tune sig. gen. to approx. 10.5MC. If signal is not heard retune sig. gen. to 9.6MC and loosen A27 until next peak is obtained. Adjust for maximum output and recheck for image.
20	"	"	"	"	Do not change.	"	A28	Rock tuning control and adjust for maximum output.
21	"	"	"	"	"	"	A29	Adjust for maximum output.
22	200MMFD	"	1620KC	STD (2nd position clockwise)	Dial pointer at extreme right end of dial backplate.	"	A30, A31, A32	" " " "
23	200MMFD	"	1500KC	"	Set right edge of pointer saddle 1-3/8" from reference mark at right end of dial backplate.	"	A33	" " " "
24	200MMFD	"	1000KC	"	Tune for maximum output.	"	A34	" " " "
25	200MMFD	"	"	"	Do not change.	"	A35	" " " "
26	200MMFD	"	560KC	"	Tune for maximum output.	"	A36	Rock tuning control and adjust for maximum output. Repeat Steps 22 through 26 until no further improvement can be made.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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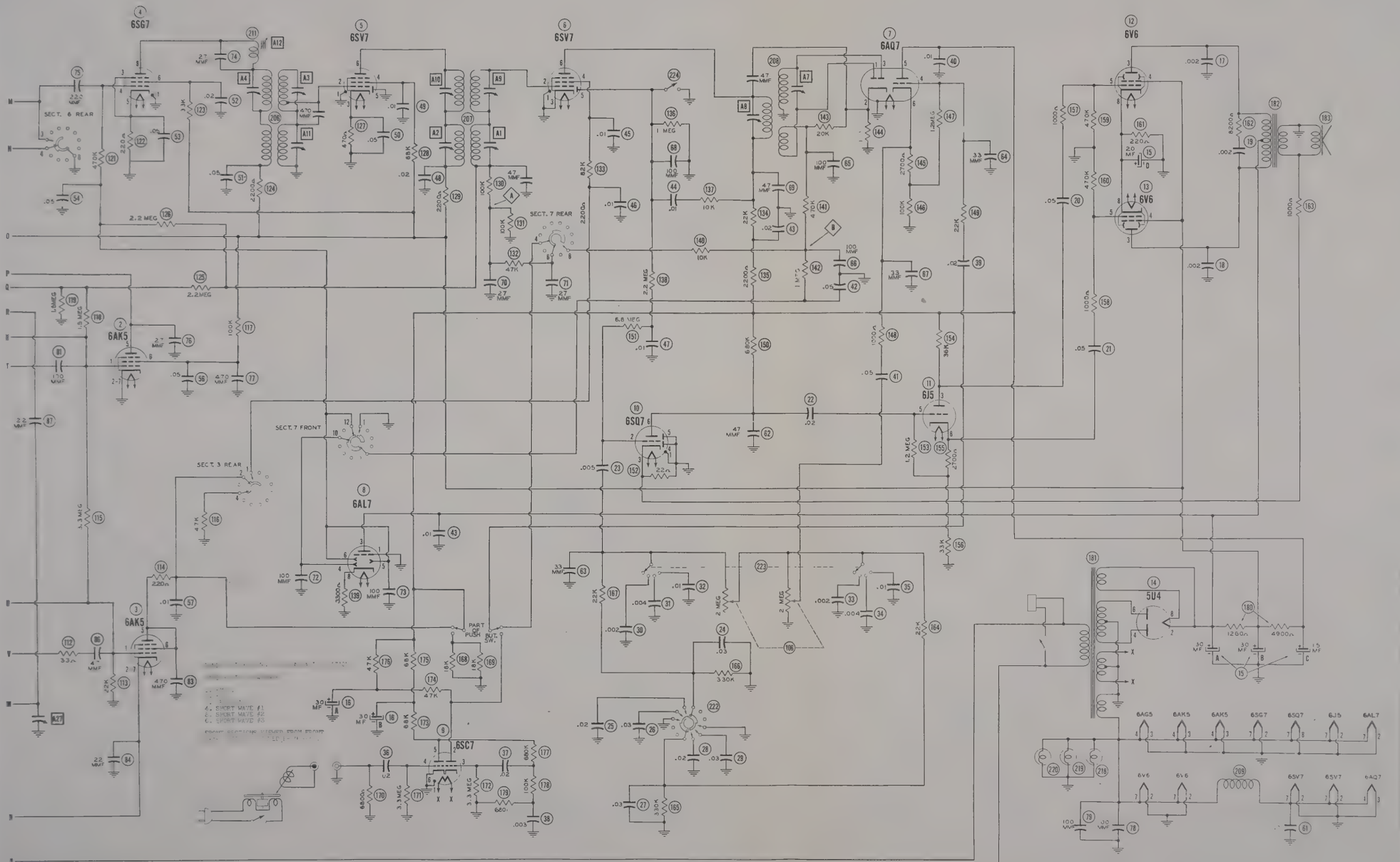

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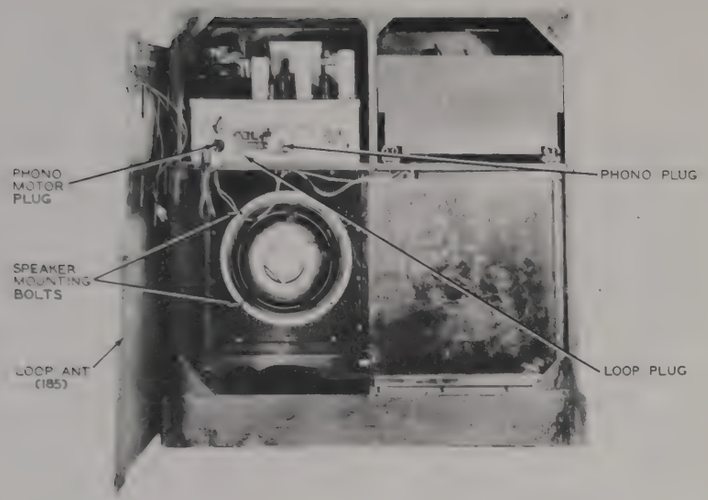


DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove eleven Phillips head wood screws holding loop antenna to back of cabinet. Remove loop antenna plug from chassis. Remove loop from cabinet.
3. Remove phono-motor plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove speaker plugs from speaker.
6. Remove eight screws holding chassis in cabinet. Remove pilot light from front of chassis. Remove chassis from cabinet.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

STAGE GAIN MEASUREMENTS

[illegible] TO 6B GRID	2X		600KC
6B GRID TO CONVERTER GRID	10X		600KC
CONVERSION GAIN	7X	IN	600KC
		OUT	455KC
1st IF TRANS.	.15X		455KC
1st IF TUBE	80X		455KC
2nd IF TRANS.	.2X		455KC
2nd IF TUBE	35X		455KC
3rd IF TRANS.	.6X		455KC
CATHODE FOLLOWER AUDIO	.9X		400~
1st AUDIO	70X		400~
INVERTER	.95X		400~
OUTPUT	36X		400~
PHONO PRE-AMP.	70X		400~
PHONO AMP.	17X		400~

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	1	6AG5	-.05VDC	0V.	0V.	6.4VAC	237VDC	160VDC	0V.	-
	2	6AK5	-1.2VDC	0V.	0V.	6.4VAC	230VDC	149VDC	0V.	-
	3	6AK5	-13VDC§	0V.	0V.	6.4VAC	150VDC	150VDC	0V.	-
	4	6SQ7	0V.	0V.	2.6VDC	0V.	2.6VDC	180VDC	6.4VAC	260VDC
	5	6SV7	0V.	0V.	1.7VDC	185VDC	0V.	260VDC	6.4VAC	0V.
	6A	6SV7	0V.	-.7VDC	0V.	0V.	0V.	150VDC	6.4VAC	0V.
‡	6B	6SV7	0V.	0V.	0V.	70VDC	0V.	100VDC	6.4VAC	0V.
‡	7	6AQ7GT	2.4VDC	1.1VDC	0V.	.4VDC	150VDC	47VDC	6.4VAC	0V.
	8	6AL7GT	0V.	0V.	325VDC	-.05VDC	-.05VDC	-.05VDC	6.4VAC	1.6VDC
#	9	6SC7	0V.	85VDC	-.4VDC	-.4VDC	70VDC	0V.	3.2VAC	3.2VAC
	10	6SQ7	0V.	-.4VDC	.1VDC	0V.	0V.	60VDC	6.4VAC	0V.
	11	6J5	0V.	0V.	110VDC	35VDC	1VDC	150VDC	6.4VAC	40VDC
	12	6V6GT	0V.	0V.	322VDC	26CVDC	0V.	0V.	6.4VAC	15VDC
	13	6V6GT	0V.	0V.	322VDC	260VDC	0V.	0V.	6.4VAC	15VDC
	14	5U4	0V.	325VDC	0V.	310VAC	0V.	310VAC	0V.	325VDC

RESISTANCE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	1	6AG5	2.5 Meg.	0Ω	0Ω	.1Ω	60KΩ	150KΩ	0Ω	-
	2	6AK5	1.8 Meg.	0Ω	0Ω	.1Ω	65KΩ	150KΩ	0Ω	-
	3	6AK5	18KΩ	.6Ω	0Ω	.1Ω	50KΩ	50KΩ	.6Ω	-
	4	6SQ7	0Ω	0Ω	220Ω	3 Meg.	220Ω	80KΩ	.1Ω	50KΩ
	5	6SV7	0Ω	1.6Ω	520Ω	118KΩ	0Ω	50KΩ	.1Ω	0Ω
	6A	6SV7	0Ω	200KΩ	0Ω	INF.	1 Meg.	80KΩ	.1Ω	0Ω
‡	6B	6SV7	0Ω	180KΩ	0Ω	140KΩ	1 Meg.	100KΩ	.1Ω	0Ω
‡	7	6AQ7GT	225KΩ	115KΩ	1Ω	1.3 Meg.	55KΩ	100KΩ	.1Ω	0Ω
	8	6AL7GT	0Ω	0Ω	50KΩ	2.5 Meg.	2.5 Meg.	2.5 Meg.	.1Ω	3.5KΩ
#	9	6SC7	0Ω	110KΩ	3 Meg.	3 Meg.	150KΩ	0Ω	.05Ω	.05Ω
	10	6SQ7	0Ω	10 Meg.	20Ω	0Ω	0Ω	750KΩ	.1Ω	0Ω
	11	6J5	0Ω	0Ω	85KΩ	30KΩ	1.2 Meg.	50KΩ	.1Ω	36KΩ
	12	6V6GT	0Ω	0Ω	50KΩ	50KΩ	480KΩ	480KΩ	.1Ω	200Ω
	13	6V6GT	0Ω	0Ω	50KΩ	50KΩ	480KΩ	480KΩ	.1Ω	200Ω
	14	5U4G	INF.	50KΩ	INF.	40Ω	INF.	38Ω	INF.	50KΩ

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

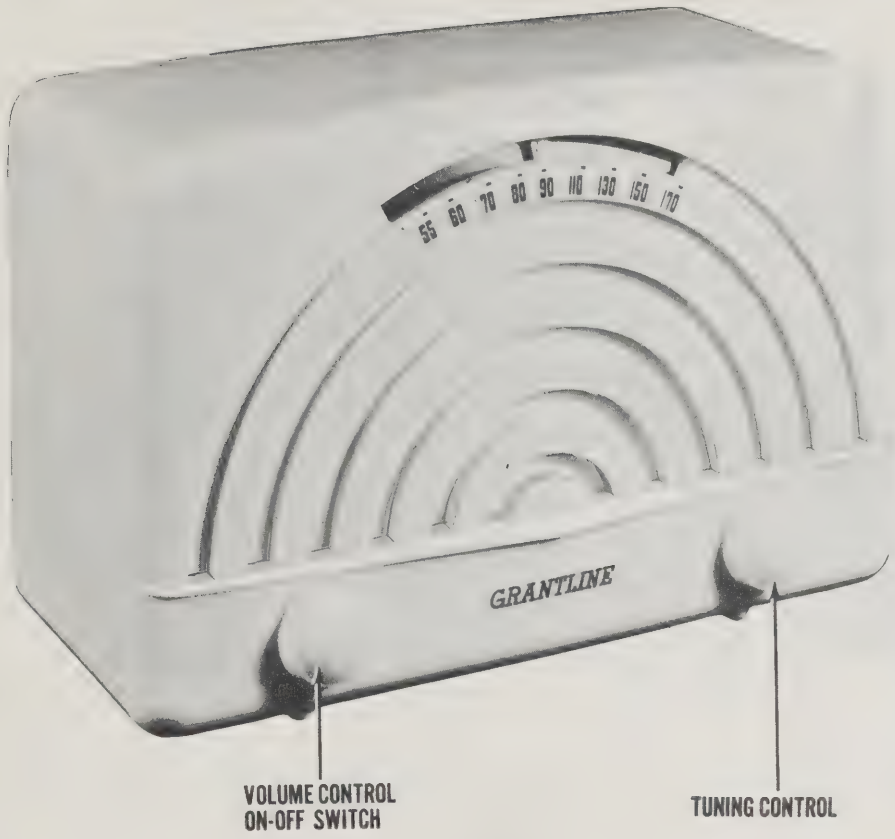
#RADIO-PHONO SWITCH IN PHONO POSITION.

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GRANTLINE MODEL
501-7



GRANTLINE MODEL
501-7

GRANTLINE MODEL 501-7

TRADE NAME	Grantline, Model 501-7
SUPPLIER	W. T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	530-1700KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set left edge of pointer saddle 1/4" from left edge of black dial backplate.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1500KC	Left edge of pointer saddle 3" from left edge of black dial backplate.	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	"	Tune for maximum output.	"	A4	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-SET #485-10 SET #35-FOLDER #10

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GRANTLINE PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	20	150	CE-11	DSB-3x20-150	TA-220	PRSA150-20-20	EZ42215	Filter - Blue
B	20	150						" - Grn.
C	20	150			UT-201	PRS150-20		" - Red
7	.02	400	CP-203-1	S-4-02	TC-12	484-02	DT4S2	Rectifier Bypass
8	.02	400	CP-203-1	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.01	200	CP-103-2	S-4-01	TC-11	484-01	DT2S1	Audio Coupling
10	.002	400	CP-202-2	S-6-002	TC-22	484-002	DT6D2	" "
11	.01	400	CP-103-1	S-4-01	TC-11	484-01	DT4S1	Conv. Cathode Bypass
12	.05	200	CP-503-4	S-4-05	TC-15	484-05	DT2S5	Line Isolation
13	.05	200	CP-503-4	S-4-05	TC-15	484-05	DT2S5	AVC Filter
14	150		CM-151-1	MO.5-315	1FM-315	1468-00015	5W5T15	Diode RF Filter
15	150		CM-151-1	MO.5-315	1FM-315	1468-00015	5W5T15	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	GRANTLINE PART No.	IRC PART No.	CLAROSTAT PART No.	
16	1 Meg.	½	Y-VC-2			Volume Control & Sw.

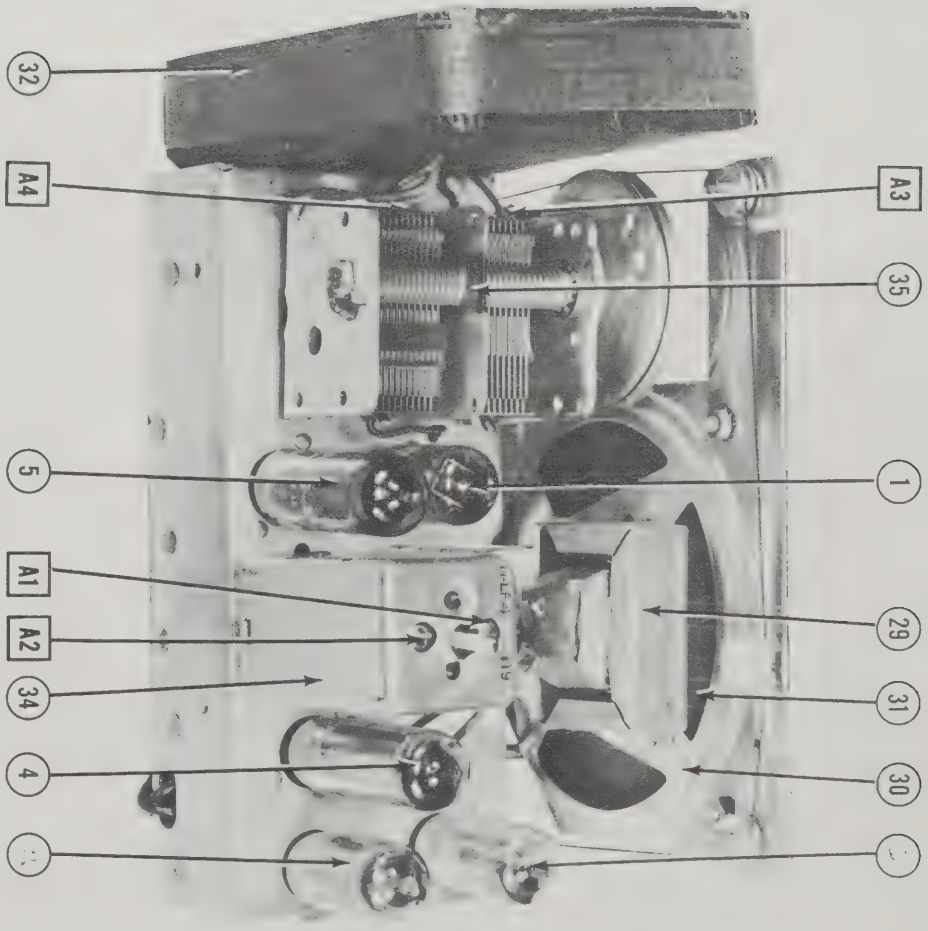
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GRANTLINE PART No.	IRC PART No.	
17	22KΩ	½	RC-223-1	BTS-22K	Red-Red-Or. Oscillator Grid
18	82Ω	½	RC-820-2	BW-½-82	Gray-Red-Blk. Converter Cathode
19	2.2 Meg.	½	RC-225-1	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	6800Ω	½	RC-682-1	BTS-6800	Blue-Gray-Red IF Plate Load
21	100KΩ	½	RC-104-1	BTS-100K	Br.-Blk.-Yl. Diode Load
22	100KΩ	½	RC-104-1	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
23	10 Meg.	½	RC-106-1	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
24	220KΩ	½	RC-224-1	BTS-220K	Red-Red-Yl. AF Plate Load
25	470KΩ	½	RC-474-1	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½	RC-151-1	BW-½-150	Br.-Grn.-Br. Output Cathode
27	1500Ω	1	RC-152-4	BTA-1500	Br.-Grn.-Red Filter
28	150Ω	1	RC-151-4	BW-1-150	Br.-Grn.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GRANTLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	2000Ω	3.2Ω	220Ω	.6Ω	TR-6	A-3676*	T22S45*	A-2638*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

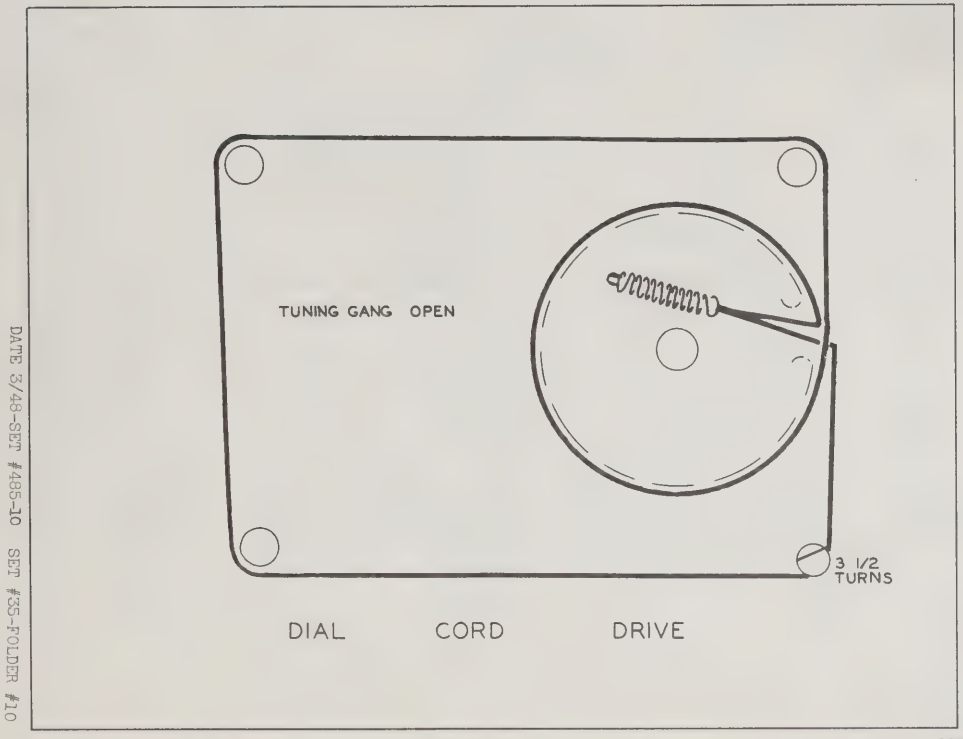
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GRANTLINE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
30	PM	3.2Ω	H-SP-3X		4A07	
	CONE DIA.	VC DIA.				
31	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

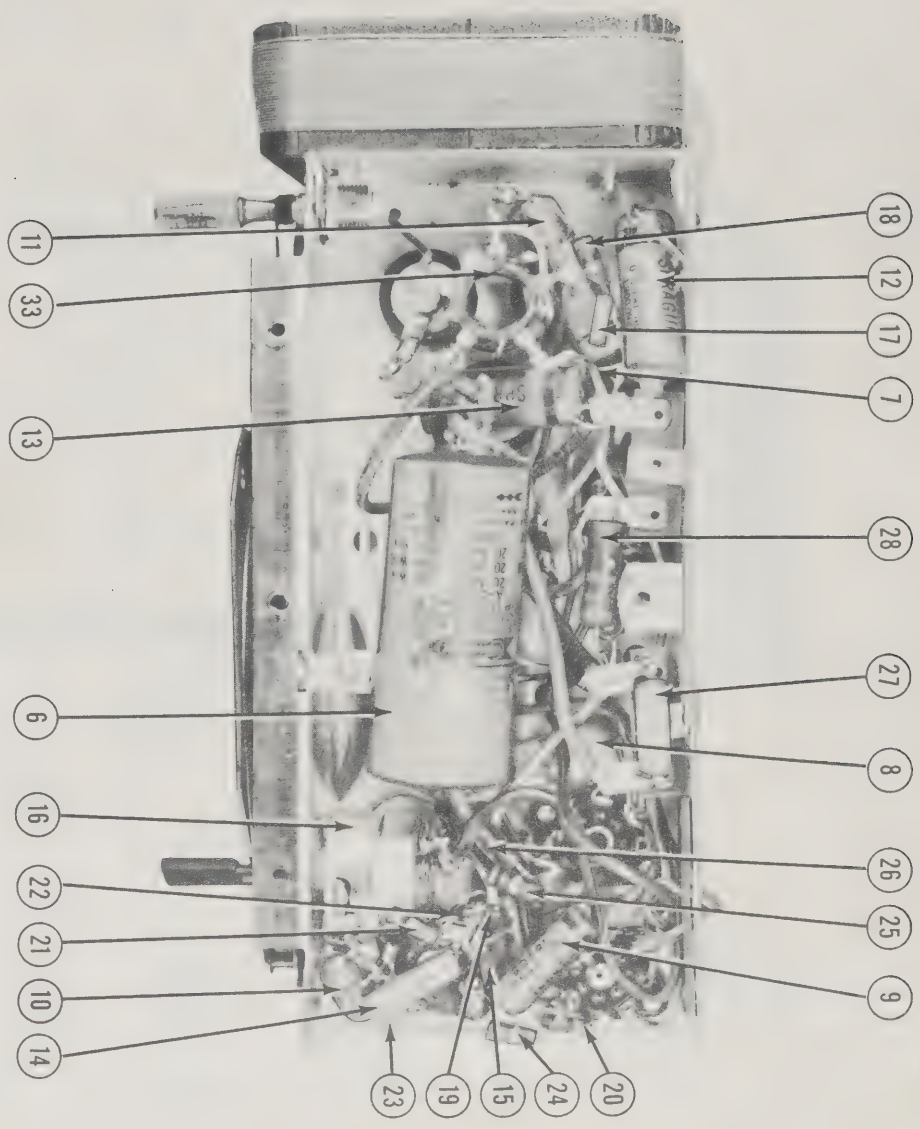
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GRANTLINE PART No.	MEISSNER PART No.	
32	Loop Ant.		3Ω	LP2		
33	Osc. Coil	.5Ω	6Ω	LC1	14-1040†	†Add 50 MMFD from osc. grid to high side tuning cap.
34	Input IF	36Ω	22.5Ω	LF4		

MISCELLANEOUS

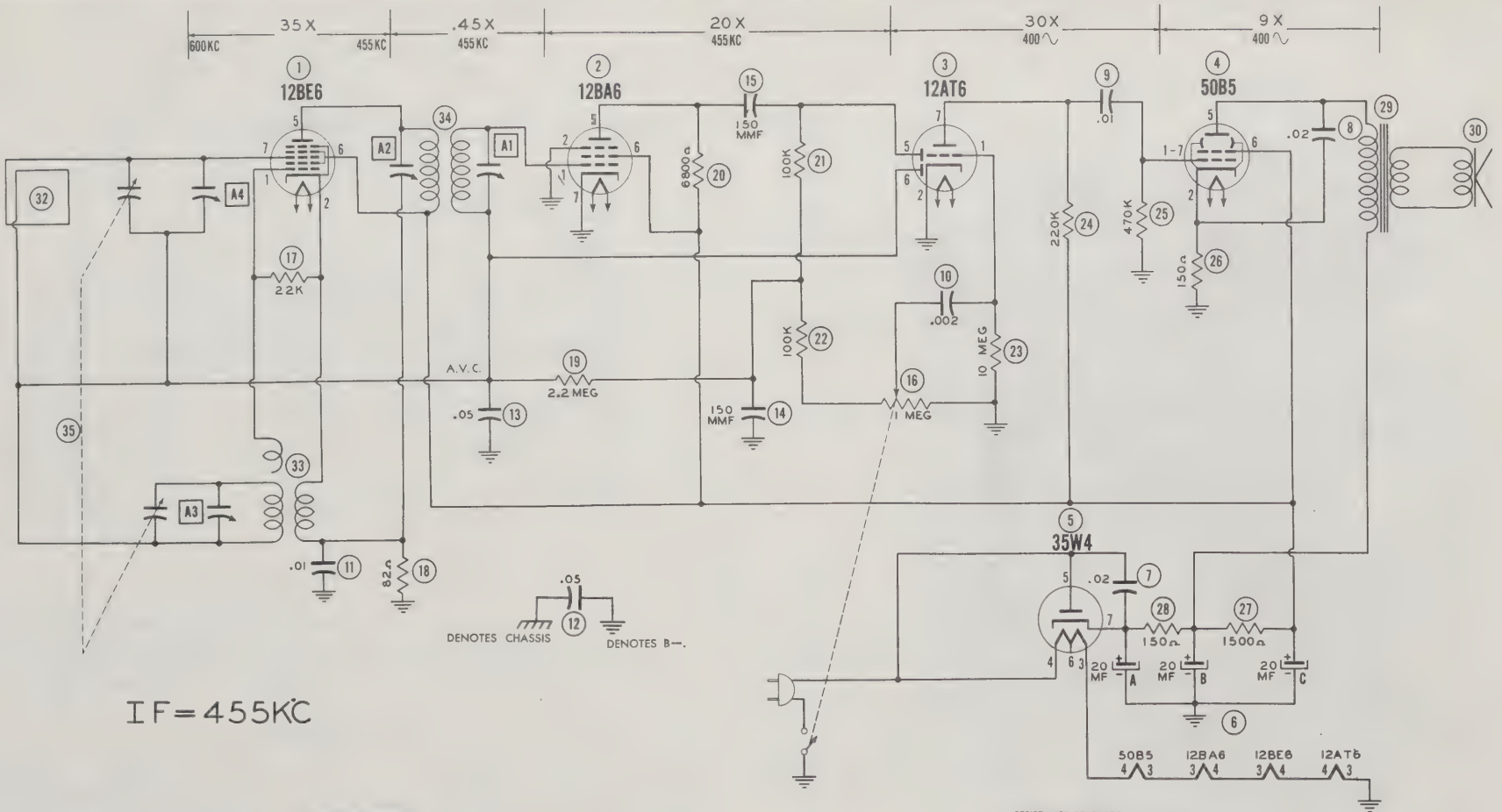
ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
35	2 Gang Var. Cap.	CV10	(35-483MMF, 25-187MMF)



CHASSIS—BOTTOM VIEW



DATE 3/48-SET #485-10 SET #35-FOLDER #10
GRANTLINE MODEL 501-7



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-7VDC§	.6VDC	23VAC	11VAC	90VDC	90VDC	-.6VDC
2	12BA6	-.6VDC	0V.	35VAC	23VAC	36VDC	90VDC	0V.
3	12AT6	-.5VDC	0V.	0V.	11VAC	-.5VDC	-.6VDC	55VDC
4	50B5	0V.	5VDC	35VAC	83VAC	115VDC	90VDC	0V.
5	35W4	0V.	0V.	83VAC	117VAC	117VAC	110VAC	130VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	80Ω	24Ω	12Ω	100KΩ	100KΩ	4 Meg.
2	12BA6	4 Meg.	0Ω	35Ω	24Ω	107KΩ	100KΩ	0Ω
3	12AT6	10 Meg.	0Ω	0Ω	12Ω	1.5 Meg.	4 Meg.	320KΩ
4	50B5	500KΩ	150Ω	35Ω	85Ω	100KΩ	100KΩ	500KΩ
5	35W4	INF.	INF.	85Ω	120Ω	120Ω	110Ω	100KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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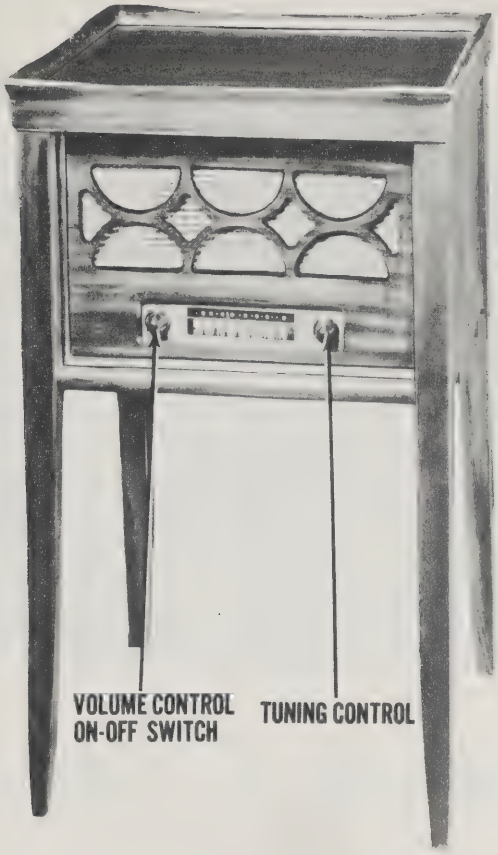
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GRANTLINE
MODEL 5610

GRANTLINE
MODEL 5610

GRANTLINE MODEL 5610

TRADE NAME	Grantline, Model 5610
SUPPLIER	W. T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .23 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to B-.	1600KC	1600KC	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	[illegible]	
2	IF Amp.	12SK7	12SK7	[illegible]	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	[illegible]	
4	Power Output	50L6GT	50L6GT	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B	20	150				20		" - Grn.
C	20	150			UT-201	PRS150-20		" - Red
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	DT4S2	Rectifier Bypass
8	.02	400		S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
10	.05	400		S-4-05	TC-15	484-05	DT4S5	AVC Filter
11	.05	400		S-4-05	TC-15	484-05	DT4S5	Line Isolation
[illegible]	[illegible]	300		MO.5-27	1FM-27	684-0075	1D5D7	Audio Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	[illegible] KΩ	±	A-VC-1	BTS-1A3	N-66-2	Volume Control
b Shaft			Not Req.	A	Not Req.	Attach to 13A per instructions
c Switch			" "	41	SW-A	" " " " "

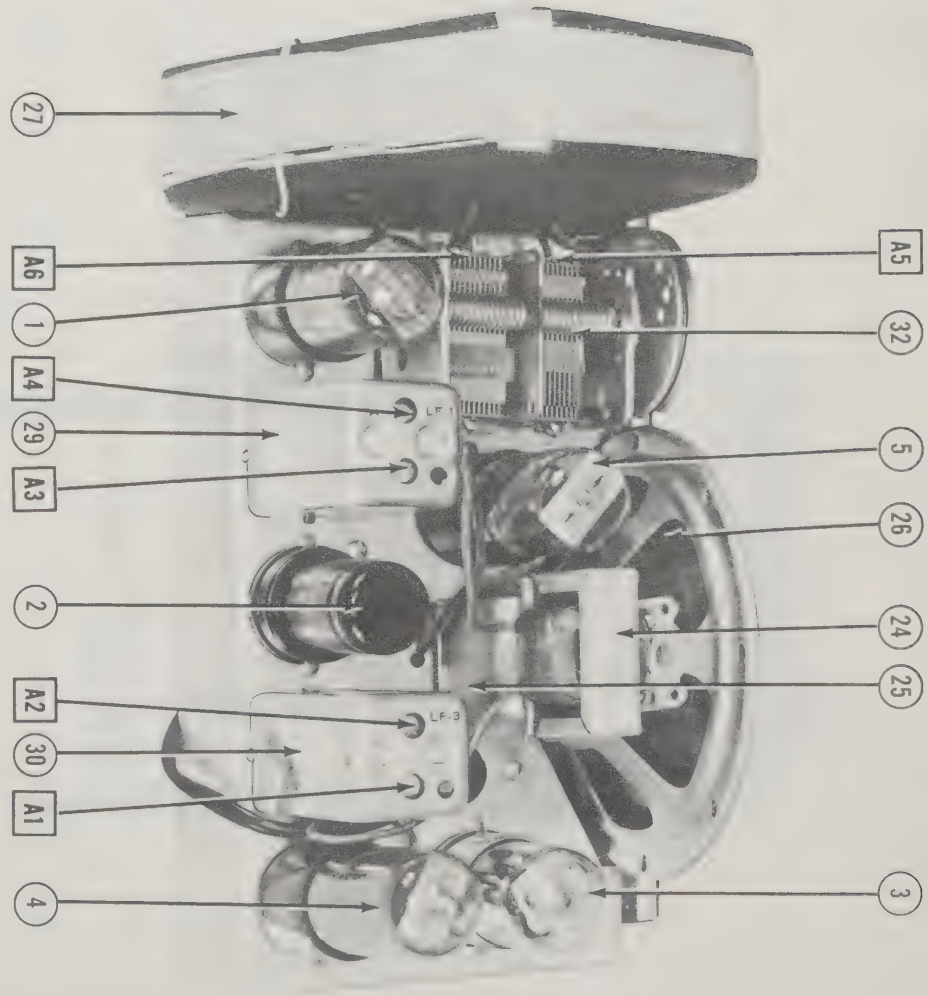
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	IRC PART No.	IDENTIFICATION CODES
14	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
15	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
16	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
17	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
18	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
19	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
20	1500Ω	½		BTS-1500	Br.-Grn.-Red Filter
21	100Ω	½		BW-½-100	Br.-Blk.-Br. Surge Limiter
22	18Ω	½		BW-½-18	Br.-Gray-Blk. Surge Limiter
[illegible]	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GRANTLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
[illegible]	[illegible]	[illegible]	[illegible]	.7Ω		A-[illegible]*	T-[illegible]*	A-[illegible]*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	GRANTLINE PART No.	JENSEN PART No.	QUAM PART No.	
25	PM	2.5Ω		ST-10P † Mod. P5-X	5A1	†Drill and tap magnet frame.
	CONE DIA.	VC DIA.				
26	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

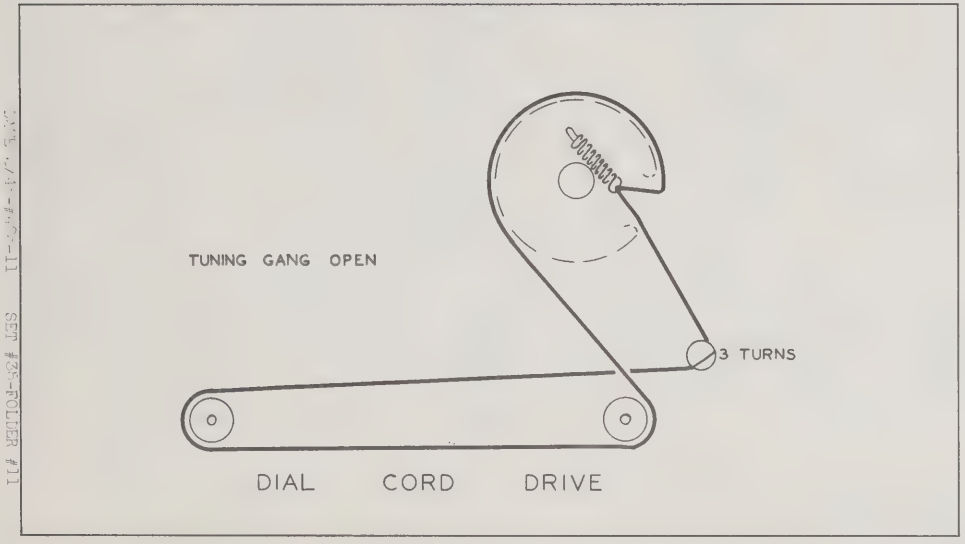
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GRANTLINE PART No.	MEISSNER PART No.	
27	Loop Ant.	.2Ω	1.2Ω	A-LP-1		
28	Osc. Coil	.5Ω	6Ω	A-LC-1	14-1040‡	‡Add 50MMFD from Osc. Grid to high side tuning cap.
29	Input IF	21Ω	21Ω	A-LF-1	16-6658	
30	Output IF	16Ω	16Ω	A-LF-3	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GRANTLINE PART No.		
31	Bayonet	6-8	0.15	Brown			Type 47

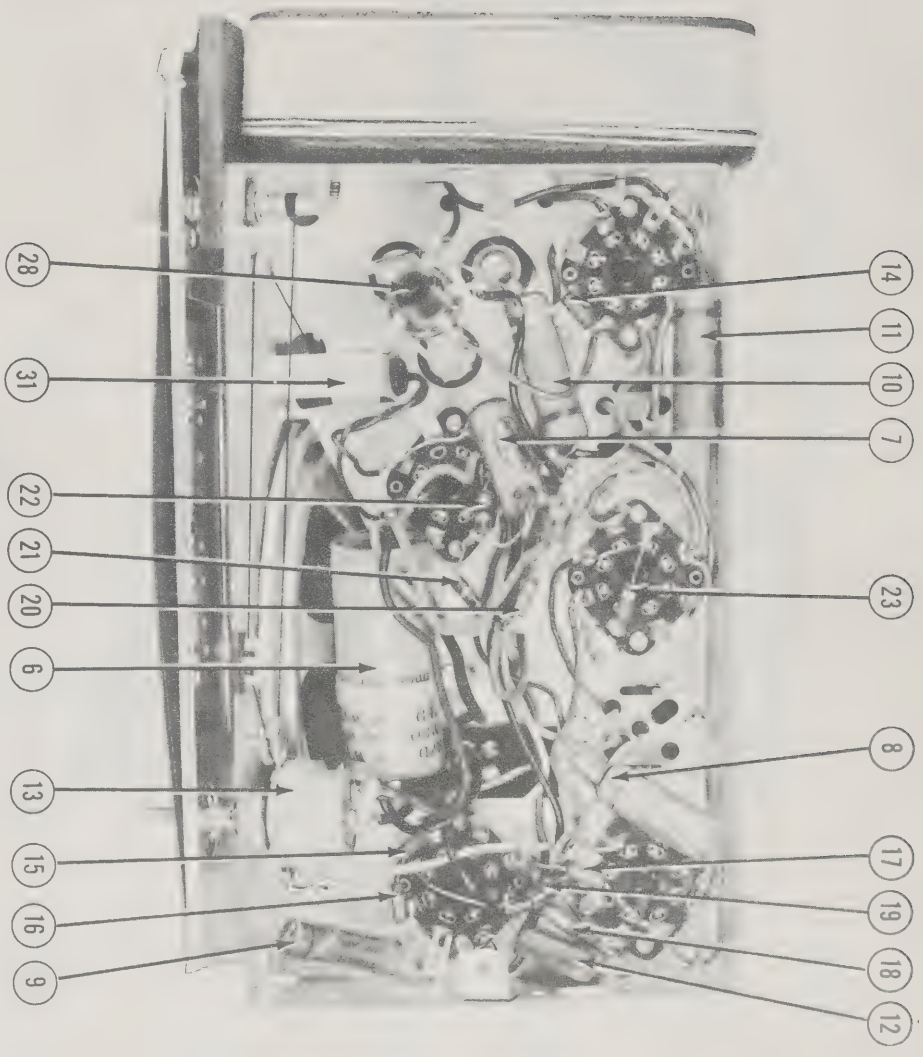
MISCELLANEOUS

ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
32	2 Gang Var. Cap.	A-CV1	(35-483MMF, 25-187MMF)

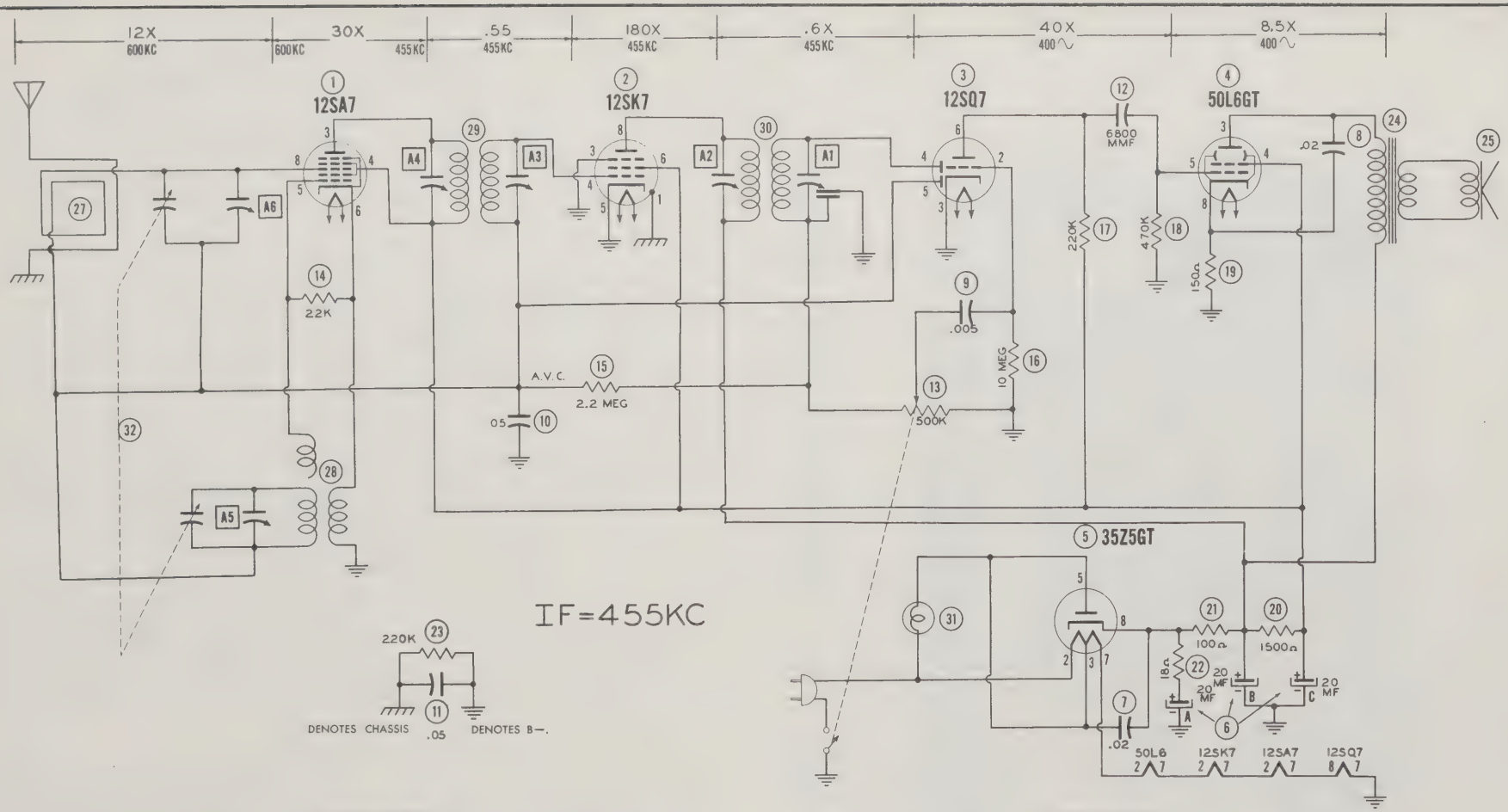


SEP 26-POLLER #1

CHASSIS—BOTTOM VIEW



GRANTLINE MODEL 5610



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	36VAC	87VDC	87VDC	-8VDC§	0V.	12VAC	-.2VDC§
2	12SK7	0V.	36VAC	0V.	-.2VDC	0V.	87VDC	26VAC	114VDC
3	12SQ7GT	0V.	-.9VDC	0V.	-.2VDC	-.2VDC	52VDC	0V.	12VAC
4	50L6GT	0V.	87VAC	110VDC	87VDC	0V.	0V.	38VAC	5.6VDC
5	35Z5GT	0V.	117VAC	112VAC	0V.	112VAC	120VDC	87VAC	120VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	220KΩ	36Ω	400KΩ	400KΩ	22KΩ	.5Ω	12Ω	3 Meg.
2	12SK7	220KΩ	36Ω	0Ω	3 Meg.	0Ω	400KΩ	23Ω	400KΩ
3	12SQ7GT	220KΩ	10 Meg.	0Ω	500KΩ	3 Meg.	620KΩ	0Ω	12Ω
4	50L6GT	220KΩ	85Ω	400KΩ	400KΩ	470KΩ	INF.	36Ω	150Ω
5	35Z5GT	INF.	115Ω	105Ω	INF.	105Ω	400KΩ	85Ω	400KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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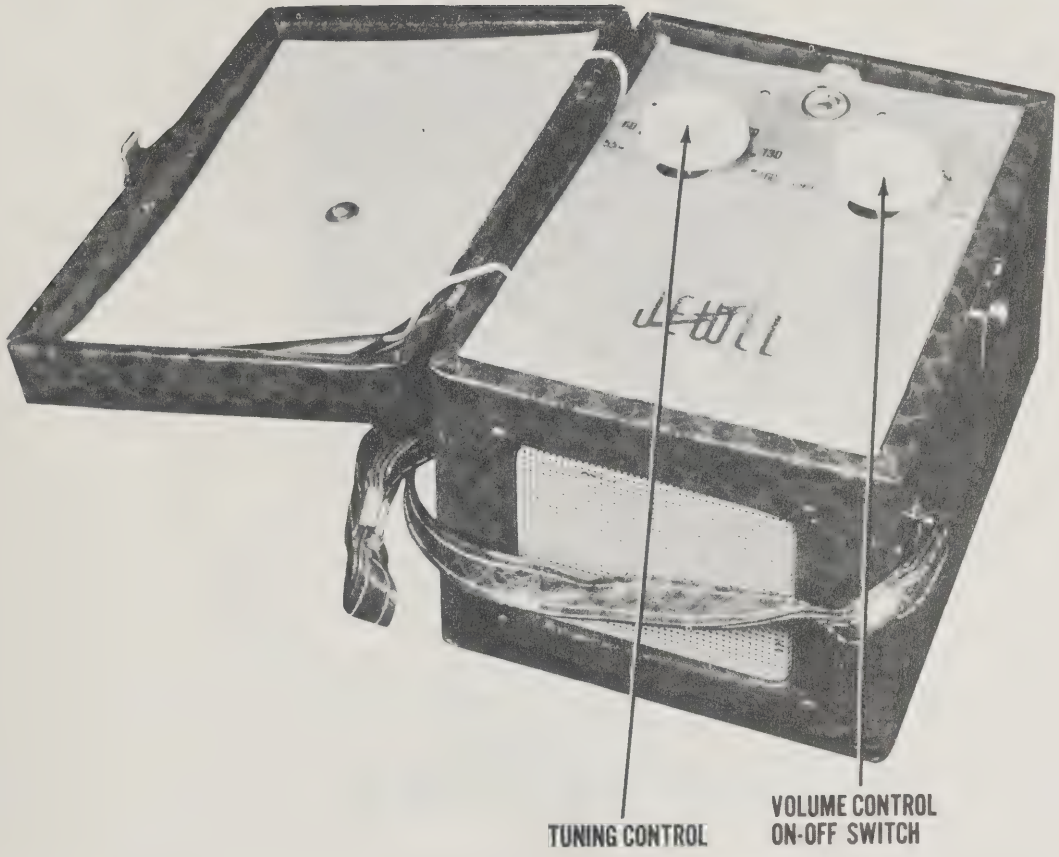
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

JEWEL MODEL 304
BATTERY OPERATED



JEWEL MODEL 304
BATTERY OPERATED

JEWEL MODEL 304

TRADE NAME	Jewel, Model 304
MANUFACTURER	Jewel Radio Corp., 583 Sixth Ave., New York, N.Y.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	250MA @ 1.5 Volts DC and 12MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 1R5. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.
4		"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.

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DATE 3/48-#485-12 SET #35-FOLDER #12

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		JEWEL PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6BA	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	JEWEL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5	[illegible]	150		M-S-150	TC-31	PRS150-8	BR815	Filter
6	.005	600		S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
7	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
8	.02	600		S-6-02	TC-13	484-02	DT4S2	AF Screen Bypass
9	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
10	.02	400		S-4-02	TC-13	484-02	DT4S2	AVC Filter
11	.01	400		S-4-01	TC-11	484-01	DT4S1	Screen Bypass
12	100	300		MP-8-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
32	100	300		MP-8-31	1FM-31	1468-0001	5W5T1	Diode RF Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	JEWEL PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	1 Meg.	2		D1A-137	M-62-2	Volume Control
B	Shaft			A	Not Req.	Attach to 13A per instructions
C	Switch			43	SW-A6	" " " " "

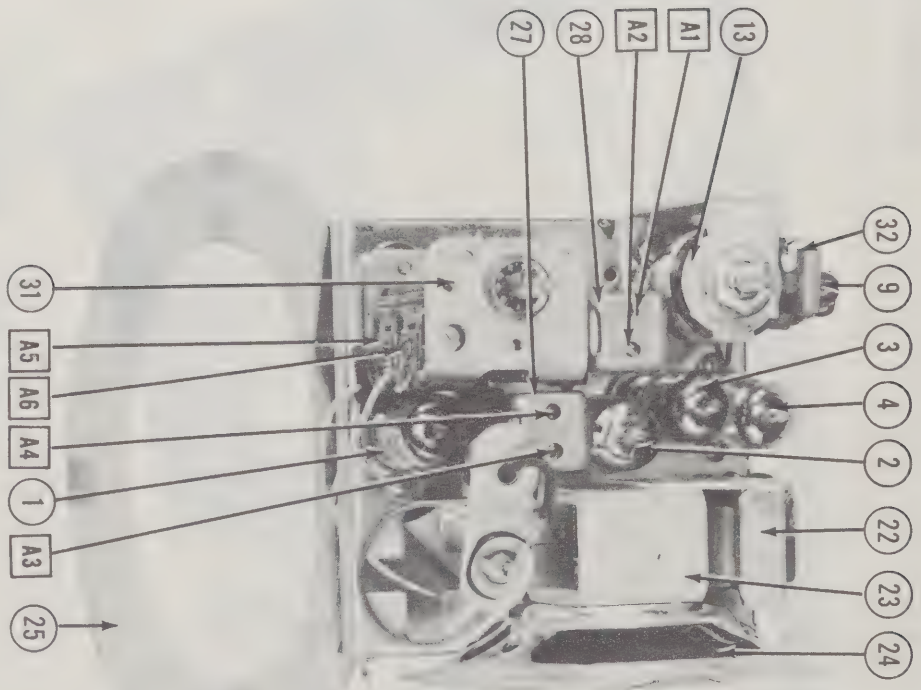
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	JEWEL PART No.	IRC PART No.	
14	100Ka	2		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
15	3.3 Meg.	2		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
16	8200Ω	2		BTS-8200	Gray-Red-Red Screen Dropping
17	10 Meg.	2		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
18	4.7 Meg.	2		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
19	1 Meg.	2		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
20	3.3 Meg.	2		BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
21	470Ω	2		BTS-470	Yl.-Vi.-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		JEWEL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
22	4100Ω	3.4Ω	350Ω	.7Ω	Part of S-6			A-2565	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			JEWEL PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
23	PM	3.4Ω	80-6			
	CONE DIA.	VC DIA.				
24	3-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	JEWEL PART No.	MEISSNER PART No.	
25	Loop Ant.		2.5Ω			
26	Osc. Coil	1.5Ω	6.1Ω			
27	Input IF	18.5Ω	19Ω	61-4		
28	Output IF	18.5Ω	19Ω	61-4		

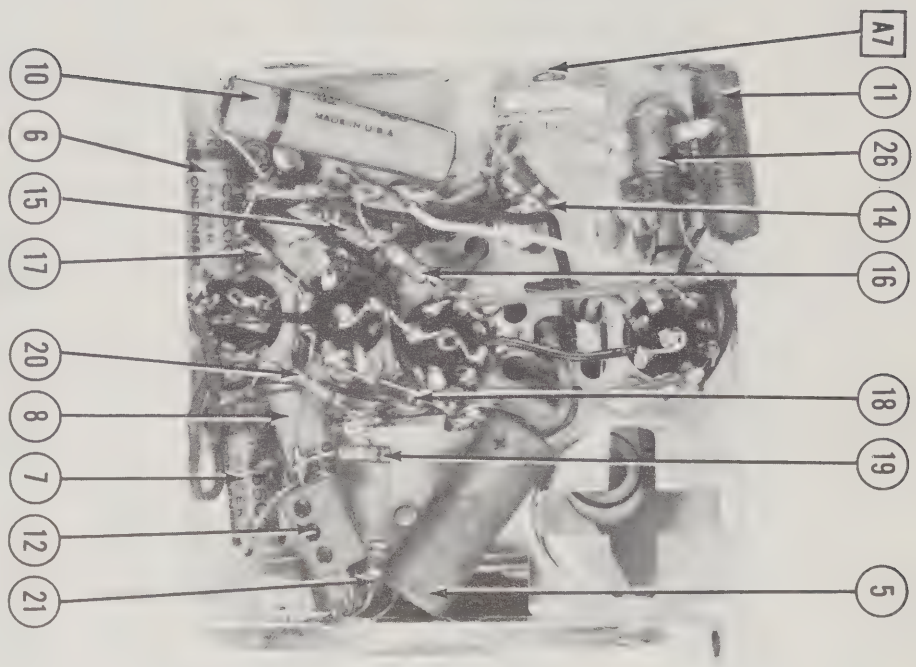
BATTERIES

ITEM No.	VOLTAGE	JEWEL PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
29	1.5V "A"		#950			#2R			
30	67.5V"B"			#467			#XX-4		

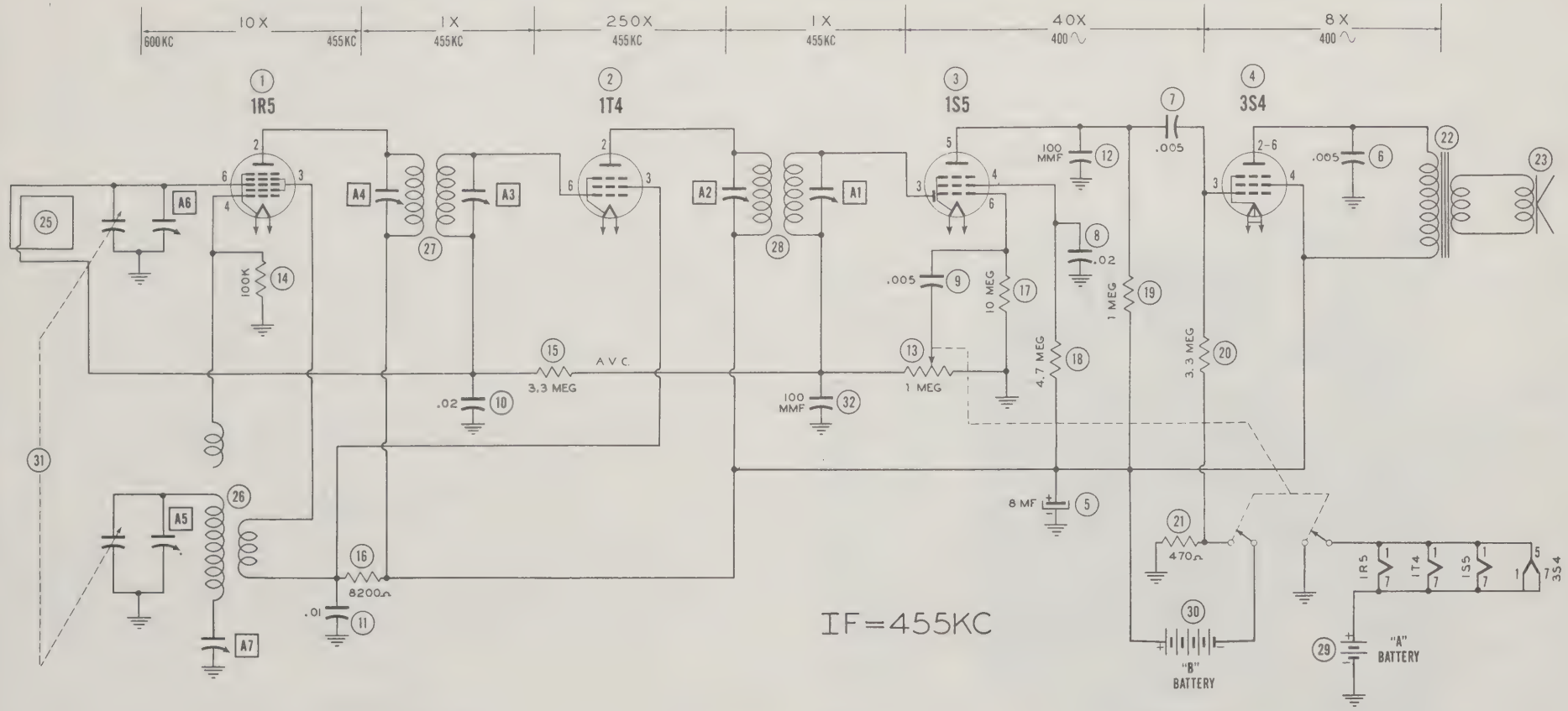
MISCELLANEOUS

ITEM No.	PART NAME	JEWEL PART No.	NOTES
31	2 Gang Var. Cap.		(60-371MMF, 50-276MMF)

CHASSIS—BOTTOM VIEW



DATE 3/48-#495-12
SET #35-FOLDER #12
JEWEL MODEL 304
BATTERY OPERATED
JEWEL MODEL 304
BATTERY OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	62VDC	45VDC	-12VDC§	0V.	0V.	1.4VDC
2	1T4	0V.	62VDC	45VDC	0V.	0V.	0V.	1.4VDC
3	1S5	0V.	0V.	0V.	2.6VDC	22VDC	0V.	1.4VDC
4	3S4	1.4VDC	60VDC	-.5VDC	62VDC	0V.	60VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	100KΩ	110KΩ	100KΩ	*	5 Meg.	*
2	1T4	*	100KΩ	110KΩ	INF.	*	5 Meg.	*
3	1S5	*	INF.	1 Meg.	5 Meg.	1.1 Meg.	10 Meg.	
4	3S4	*	100KΩ	3.3 Meg	100KΩ	*		

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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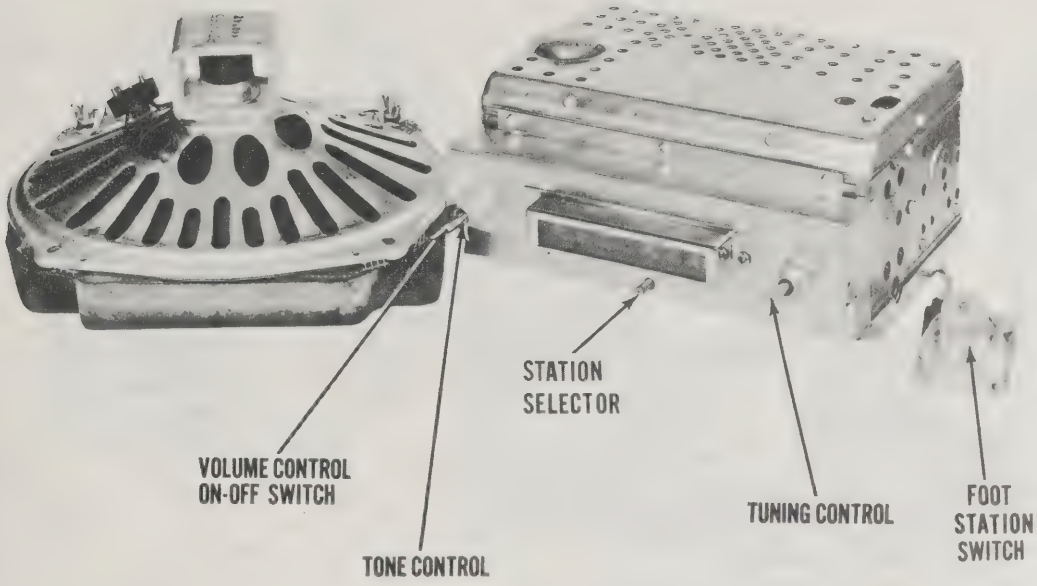
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.



KAISER-FRAZER MODEL 200001

TRADE NAME	Kaiser-Frazer, Model 200001
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N.Y.
TYPE SET	Battery Operated Automotive Superheterodyne Receiver
TUBES (SIX)	Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier.
POWER SUPPLY	6.3 Volts Storage Battery
TUNING RANGE—BROADCAST	540-1600KC RATING 5.7 Amps. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 7A7 IF Tube (3). Low side to chassis.	265KC	535KC	Across voice coil	A1,A2	Adjust for maximum output.
2	.1 MFD.	High side to Pin 6 (grid) 7B8. Low side to chassis.	"	"	"	A3,A4.	Adjust for maximum output. Repeat Steps 1 & 2 until no further improvement can be made.
3	2 - 30 MMFD cap.	One 30MMFD cap. from ant. socket to chassis. High side in series with other 30MMFD cap. to ant. socket. Low side to chassis.	1400KC	1400KC	"	A5,A6, A7,A8	Adjust for maximum output in order given. If calibration is off correct pointer setting with screw adjustment of eccentric cam that actuates the tail of the dial scale pointer.
	THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED ONLY WHEN A CORE OR COIL HAS BEEN REPLACED.						
4	2 - 30 MMFD cap.	One 30MMFD cap. from ant. socket to chassis. High side in series with other 30MMFD cap. to ant. socket. Low side to chassis.	1675KC	1600KC (slugs fully out)	"	A5,A6, A7,A8.	Screw ant., RF, converter & osc. cores completely out of their coils. Adjust A5, A6, A7, A8 for maximum output. Replace cores to their approximate original positions.
5	"	"	1400KC	1400KC	"	A9,A10, A11,A12	Adjust for maximum output in order given.
6	"	"	600KC	Tune for maximum output.	"	A13	Rock tuning control and adjust for maximum output. Repeat Steps 4 & 5 and check receiver at 1200KC. If weak or off calibration repeat Steps 4, 5 & 6. Apply speaker cement to core screws.

With receiver mounted in car adjust A8 for maximum volume on weak station about 1200KC.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	8V	
2	Converter	7B6	7B6	8X	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B5	7B5	8W	
5	Power Output	7C5	7C5	6AA	
6	Rectifier	7Y4	7Y4	5A3	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	350	RCE-053	DY-2x15-350	EL-254	AF22J	UP15D35	■ Filter
7B	10	300				PRS350-12		▲ "
8	.008	1600		TM-16-008	TR-28		MD16D8	Buffer
9	.5	200	UCC-016					Hash Filter
10	.5	200	UCC-016					" "
11	.005	600	UCC-039	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
12	.003	200	UCC-003	S-6-003	TC-23	484-003	DT6D3	Tone Compensation
13	.02	200	UCC-009	S-4-02	TC-12	484-02	DT2S2	" "
14	.01	600	UCC-040	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
15	.005	200	UCC-005	S-6-005	TC-25	484-005	DT6D5	" "
16	.05	200	UCC-011	S-4-05	TC-15	484-05	DT2S5	AVC Filter
17	.1	400	UCC-030	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
18	.1	200	UCC-013	S-2-1	TC-1	484-.1	DT2P1	Cathode Bypass
19	250	500	RCU-279	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
20	100	500	UCU-1028	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
21	350	500	RCN-008					Compensating Cap.
22	100	500	UCU-1028	MO.5-31	1FM-31	1468-00031	5W5T1	Osc. Feedback
23	250	500	RCU-279	MO.5-325	1FM-325	1468-00025	5W5T25	Fixed Padder
24	1000	600	UCC-035	MW.5-21	1FM-21	1467-001	1W5D1	RF Coupling
25	4000	600	RCU-190	MW.5-24	1FM-24	1467-004	1D5D5	Fixed Padder

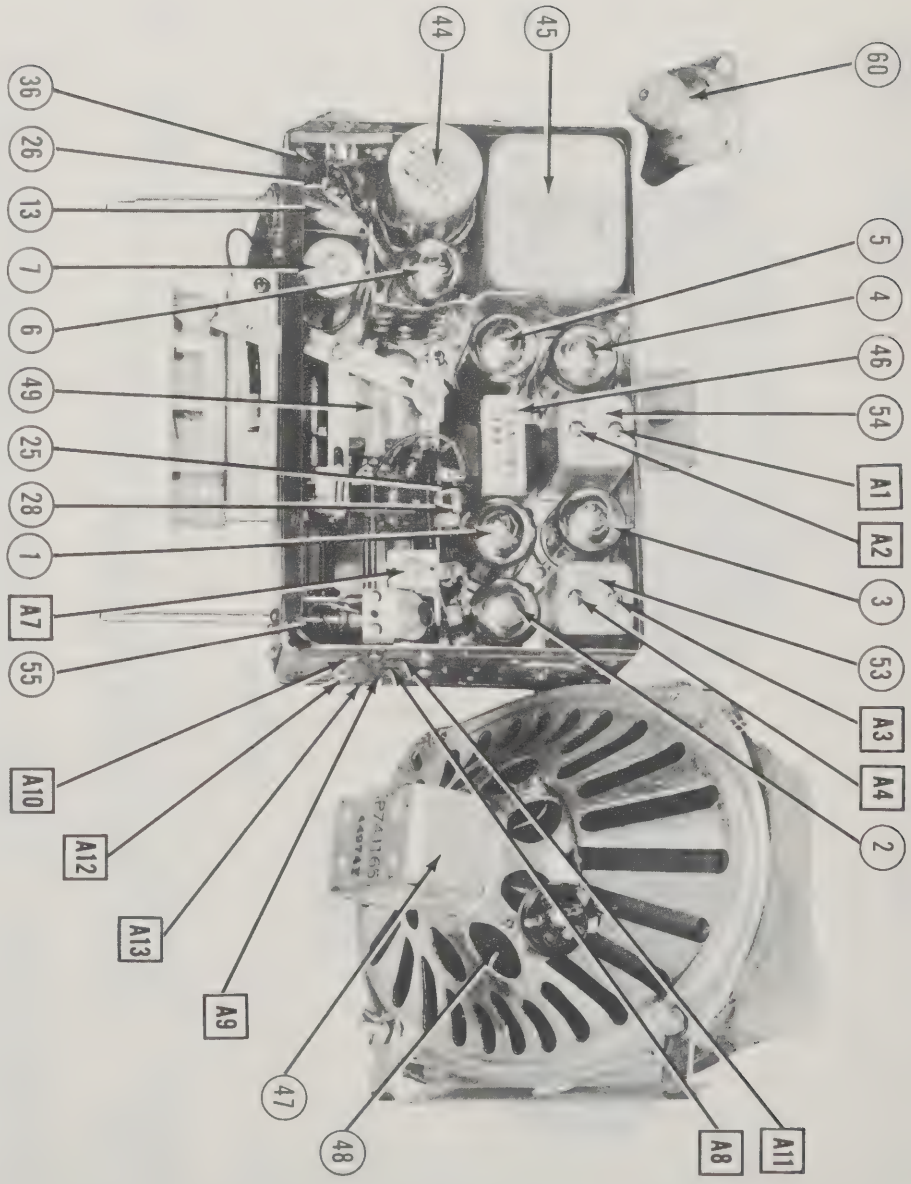
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
26	250K-1.5 Meg.	½	RRC-049			Volume-Tone Controls & SW.
27	800Ω	1	RRC-048			Sensitivity Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
28	330KΩ	¼	URD-109	BTS-330K	Or.-Or.-Yl. RF Grid
29	18KΩ	½	URD-079	BTS-18K	Br.-Gray-Or. RF Plate Load
30	330KΩ	¼	URD-109	BTS-330K	Or.-Or.-Yl. Converter Grid
31	68KΩ	¼	URD-117	BTS-68K	Blue-Gray-Or. Oscillator Grid
32	10 Meg.	¼	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
33	15KΩ	½	URD-077	BTS-15K	Br.-Grn.-Or. Oscillator Anode Load
34	33KΩ	1	URE-085	BTA-33K	Or.-Or.-Or. Screen Dropping
35	1 Meg.	¼	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	22KΩ	¼	URD-081	BTS-22K	Red-Red-Or. Tone Compensation
37	15 Meg.	¼	URD-149	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
38	330KΩ	¼	URD-109	BTS-330K	Or.-Or.-Yl. AF Plate Load
39	330KΩ	¼	URD-109	BTS-330K	Or.-Or.-Yl. Output Grid
40	270Ω	1	URE-035	BW-1-270	Red-Vl.-Br. Output Cathode
41	1800Ω	2	URF-055	BT-2-1800	Br.-Gray-Red Filter
42	82Ω	2	URD-023	BW-½-82	Gray-Red-Blk. Hash Suppression
43	82Ω	2	URD-023	BW-½-82	Gray-Red-Blk. Hash Suppression

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				GENERAL ELECTRIC PART No.	RADIART PART No.	
44	Interrupter	6.3	115	REV-002	3301	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
45	5.6VDC @ 2.3A	400VCT @ .047A			RTP-043			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
46	5500Ω	3.8Ω	540Ω	.5Ω	RTO-033	A-3877*	T22S46*	A-2930*	*Duplicate original mounting.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GENERAL ELCTRIC PART No.	JENSEN PART No.	QUAM PART No.	
47A	FIELD	VC IMP.				
B	PM	3.8Ω	ROE-001		69A3	Alternate field coil speaker
48A	CONE DIA.	VC DIA.				
B	6½"x9"	3/4"	ROX-001			

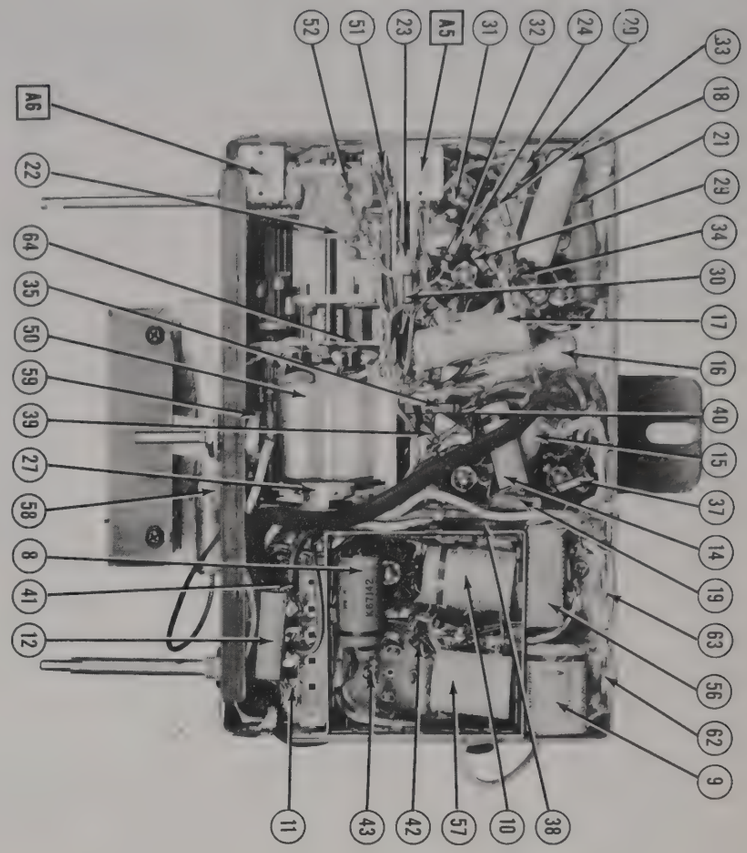
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GENERAL ELECTRIC PART No.	MEISSNER PART No.
49A	Ant. Coil		10.8Ω	RLX-004	
B	RF Coil		10.8Ω		
50A	Conv. Coil		11Ω	RLX-005	
B	Osc. Coil		1.8Ω		
51	Osc. Series Coil		.8Ω	RLC-048	
52	Osc. Shunt Coil	4Ω	2Ω	RLC-049	
53	Input IF	60Ω	60Ω	RTL-041	16-6652
54	Output IF	59Ω		RTL-042	
55	Ant. Choke		1Ω	RLl-027	
56	Hash Choke		.015Ω	RLl-028	
57	" "		.04Ω	RLl-026	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GENERAL ELECTRIC PART No.		
58	Bayonet	6-8	0.25	Blue	UDL-005		Type 44

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	GENERAL ELECTRIC PART No.	NOTES
59	Switch	RSX-012	Muting-Station Change
60	"	RSX-013	Foot Control
61	Fuse	MDL-10	10 Amp.
62	Spark Plate	REM-002	
63	" "	REM-002	
64	Solenoid	RLS-001	
A5	Trimmer	RCY-027	Osc. Adj.
A6	"	RCY-026	RF Adj.
A7	"	RCY-025	Ant. Adj.
A8	"	RCY-028	" "
	Dial Scale	RDS-041	
	Dial Pointer	RDP-036	

TAKING RECEIVER OUT OF CAR

To take the receiver out for servicing, follow the outlined procedure below.

1. Disconnect the following leads and cables: "A" lead to ignition switch at fuse ferrule, foot cable at receiver, speaker cable at speaker mounting.
2. Remove the control knobs, tuning trim knob, and hex nuts securing the receiver control shafts.
3. Loosen mounting bolt at cowl bracket.
4. While holding radio with one hand, remove wing nut, bolt, lock washer, and plain washer at receiver bracket.
5. Bracket can now be rotated 180° permitting receiver to be maneuvered down and out from behind instrument panel.
6. Remove antenna lead at receiver.
7. To remove speaker, merely take off the wing nuts and lock washers holding it on the top mounting studs. Take out the screws holding the speaker bracket to the instrument panel. Remove speaker with bracket attached.

PUSHBUTTON ALIGNMENT

1. Start with radio set for manual operation (with dial numeral & illuminated red). Stations should be set in sequence according to their frequencies beginning with the lowest frequency.
2. Press button or bar once to advance preselector to No. 1 station position.
3. Pull manual tuning control out and tune for maximum volume on first station to be set up. CAUTION (Do not attempt to force knob into its former position. The knob will return to "in" position when bar or button is again pressed.)
4. Press station selector bar or button again, pull out manual tuning control and tune in 2nd station. Use same procedure for remaining positions.
5. When the five automatic positions have been adjusted to five desired stations, it is only necessary to press station selector button or bar to return to dial tuning or any one of the stations adjusted for automatic tuning.

AUTOMATIC MUTING CIRCUIT

Pressing either the push bar or the foot control switch automatically mutes the receiver for the duration of the change cycle. This action is accomplished by grounding output winding of output transformer through the contacts of switch (61) when station selector bar is pushed or switch (62) when foot control is pressed. When further pressure is applied to either control, output transformer secondary winding remains grounded and solenoid is energized (see schematic) to affect a change in station selection.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	-5.8VDC	105VDC	52VDC	.7VDC	0V.	-.1VDC	.7VDC	0V.
2	7B8	0V.	1.8VDC	1.8VDC	-1.1VDC	.8VDC	.1VDC	.7VDC	-1.1VDC
3	7A7	-5.8VDC	185VDC	52VDC	0V.	0V.	-.2VDC	0V.	0V.
4	7B6	-5.8VDC	90VDC	-.2VDC	0V.	-.6VDC	-.6VDC	0V.	0V.
5	7C5	-5.8VDC	207VDC	185VDC	0V.	0V.	0V.	8VDC	0V.
6	7Y4	0V.	0V.	230VAC	0V.	0V.	230VAC	224VDC	-5.8VDC

RESISTANCE READINGS

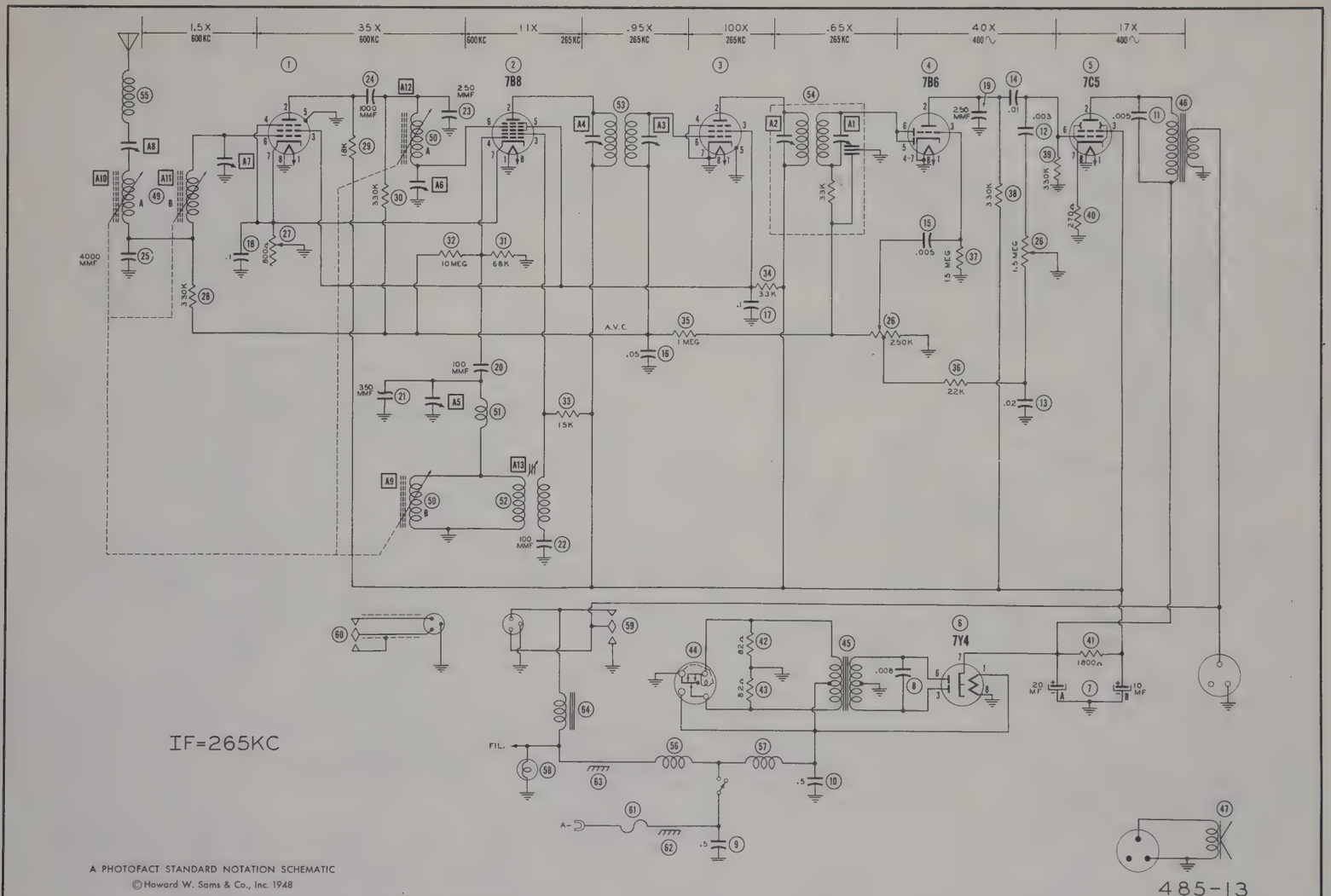
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	.5Ω	320KΩ	330KΩ	65Ω	0Ω	1.5 Meg.	0Ω	0Ω
2	7B8	0Ω	270KΩ	330KΩ	70Ω	320Ω	1.5 Meg.	0Ω	.5Ω
3	7A7	.5Ω	300KΩ	300KΩ	0Ω	0Ω	1.1 Meg.	0Ω	0Ω
4	7B6	.5Ω	630KC	15 Meg.	0Ω	190KΩ	190KΩ	0Ω	0Ω
5	7C5	.5Ω	300KC	300KΩ	INF.	330KΩ	330KΩ	270Ω	0Ω
6	7Y4	0Ω	INF.	260Ω	INF.	INF.	280Ω	300KΩ	.5Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

DATE 3/49-4405-13 SET #85-FOLDER #13



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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485-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

MECK MODEL
4C7

MECK MODEL
4C7

MECK MODEL 4C7

TRADE NAME	Meck, Model 4C7
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC-DC Operated TRF Receiver
TUBES (FOUR)	Types, 12SG7 RF Amp., 12SQ7 Det.-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	550-1750KC RATING .23 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	50 MMFD	High side to ant. coil lug to which ant. hank is attached. Low side to chassis.	1400KC	1400KC	Across voice coil	A1	Adjust for maximum output.
2	50 MMFD	"	"	"	"	A2	Adjust for maximum output. Repeat Steps 1 & 2 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SG7	12SG7	6BK	
2	Det.-AF	12SQ7	12SQ7	7AC	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	50	150		DSB-5030-150	TA-530	PRSA150-30-50	EL5315	Filter - Red
B	30	150						" - Blue
6	.01	200		S-4-01	TC-11	484-01	DT2S1	Output Plate Bypass
7	.01	200		S-4-01	TC-11	484-01	DT2S1	Audio Coupling
8	.01	200		S-4-01	TC-11	484-01	DT2S1	" "
9	.01	200		S-4-01	TC-11	484-01	DT2S1	AVC Filter
10	.01	200		S-4-01	TC-11	484-01	DT2S1	Ext. Ant. Isolation
11	300	300		MO.5-32	1FM-32	1468-00032	5W5T2	RF Coupling-Cer.
12	200	300		MO.5-32	1FM-32	1468-00032	5W5T2	Diode RF Filter-Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	1 Meg.	½	VC-1-105	D13-137	AM-6F-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 13A per instructions
C	Switch		" "	41	SW-A	" " " " "

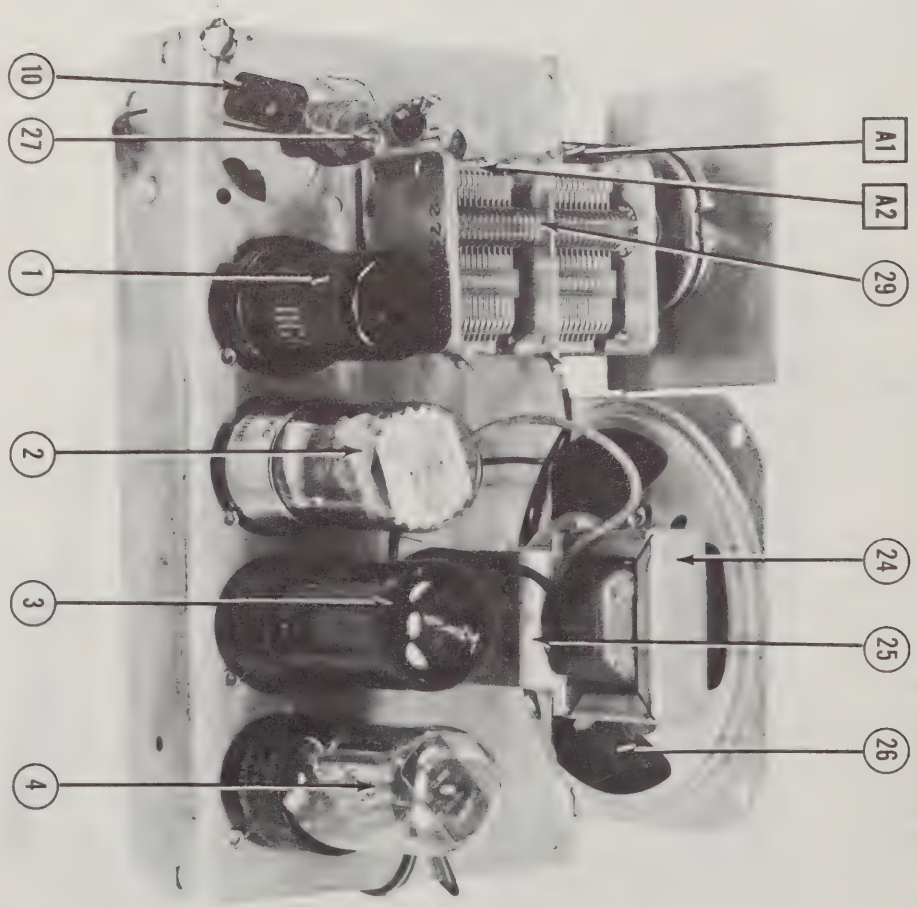
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
14	220Ω	½		BW-½-220	Red-Red-Br. Parasitic Suppressor
15	220Ω	½		BW-½-220	Red-Red-Br. RF Cathode
16	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
17	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
21	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
22	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
23	22Ω	1		BW-1-22	Red-Red-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
24	17500Ω	3.6Ω	170Ω	.6Ω	Part of SRF10001	A-3876*	TOS45*	A-3238*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

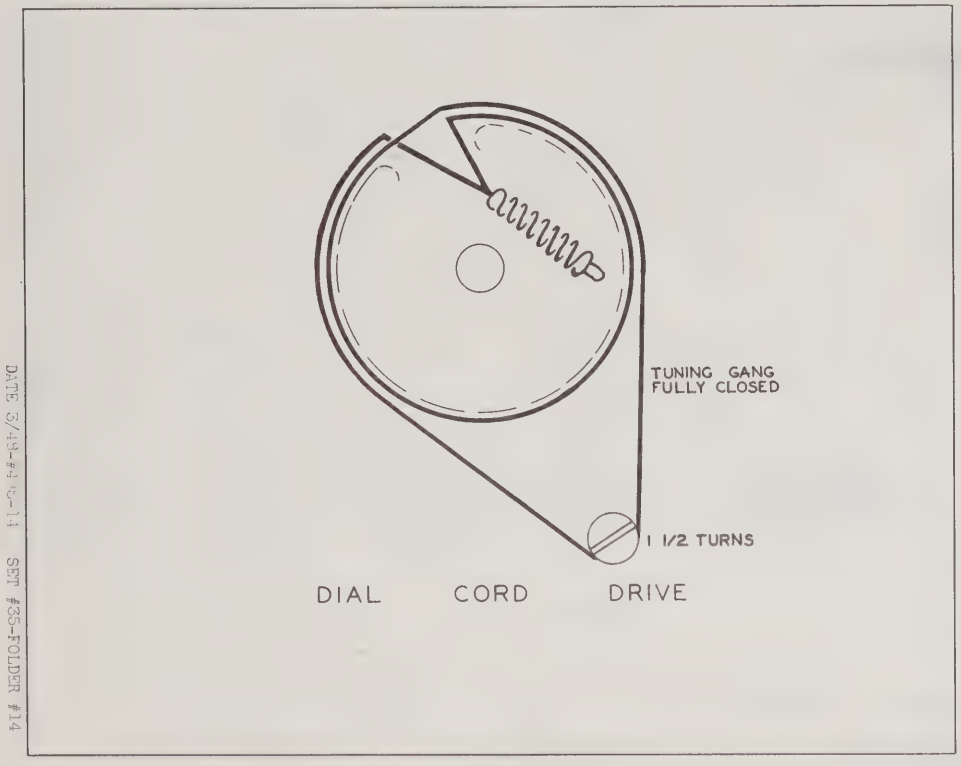
ITEM No.	RATINGS		REPLACEMENT DATA: MECK PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-113†		
25	PM	3.0Ω	SRP-10001	Mod. P4-X	4A07	†Enlarge cutout.
	CONE DIA.	VC DIA.				
26	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

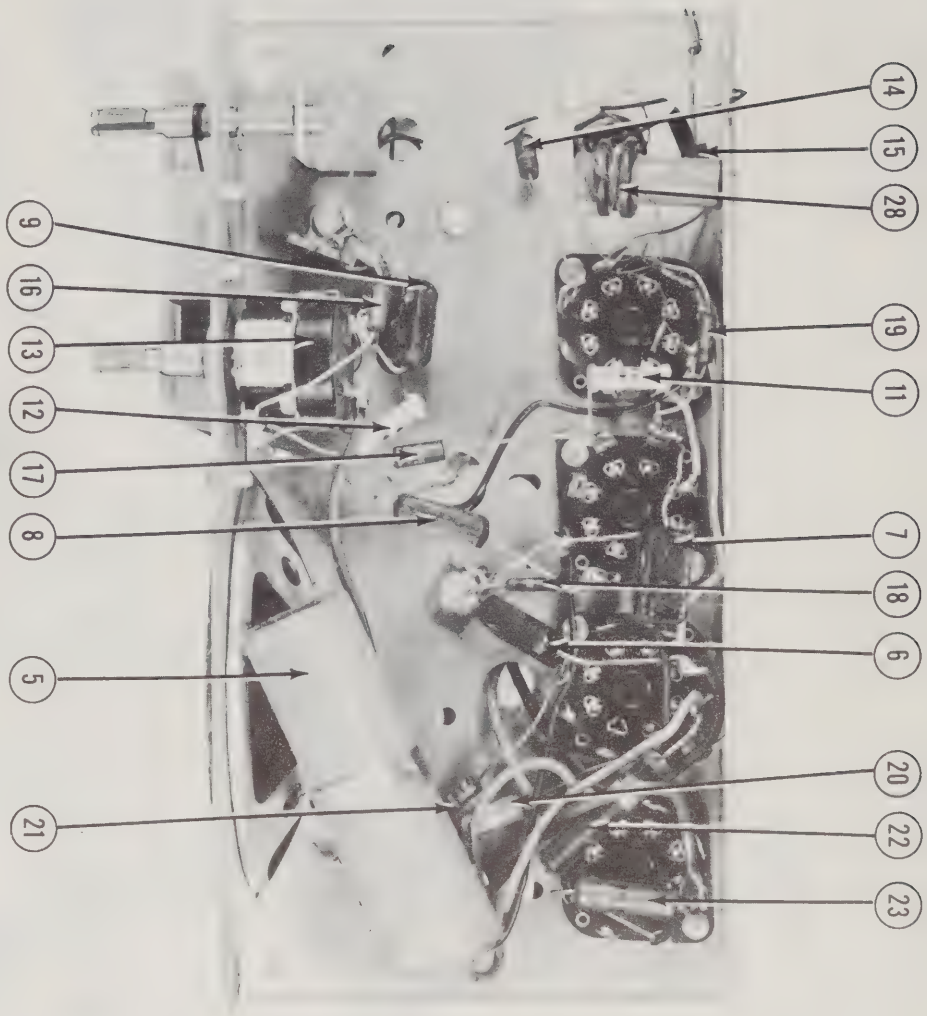
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	MEISSNER PART No.
27	Ant. Coil	3.3Ω	4.2Ω		14-1026
28	RF Coil		4.3Ω		

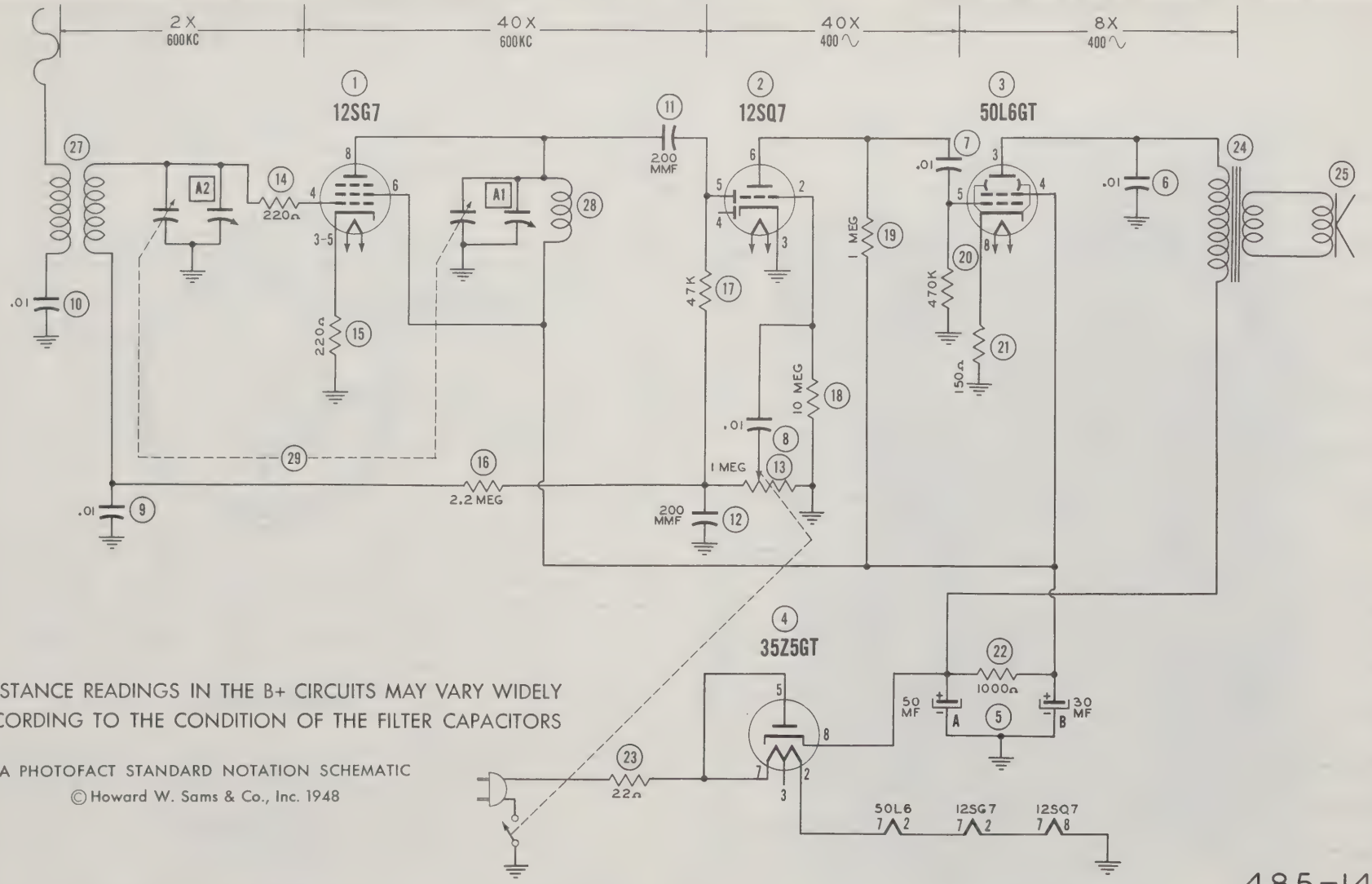
MISCELLANEOUS

ITEM No.	PART NAME	MECK PART No.	NOTES
29	2 Gang Var. Cap.		(27-463 MMF) each section



CHASSIS—BOTTOM VIEW





RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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485-14

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	0V.	1.4VAC	1.4VDC	0V.	1.4VDC	115VDC	27VAC	115VDC
2	12SQ7	0V.	-.5VDC	0V.	-.5VDC	-.6VDC	55VDC	13VAC	0V.
3	50L6GT	0V.	117VAC	117VDC	115VDC	0V.	0V.	75VAC	7.4VDC
4	35Z5GT	0V.	70VAC	84VAC	117VAC	112VAC	0V.	112VAC	125VDC

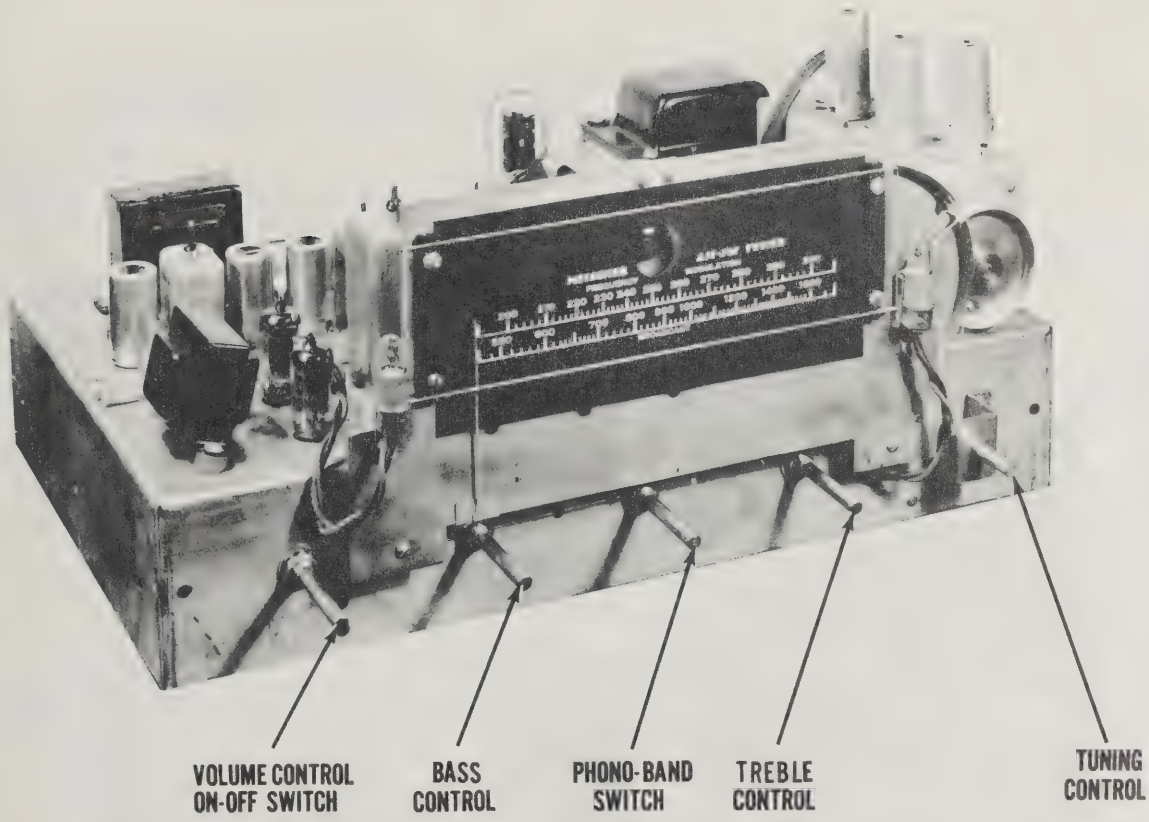
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	0Ω	13Ω	200Ω	3 Meg.	200Ω	300KΩ	25Ω	300KΩ
2	12SQ7	0Ω	10 Meg.	0Ω	INF.	1 Meg.	1.3 Meg.	13Ω	0Ω
3	50L6GT	INF.	25Ω	300KΩ	300KΩ	470KΩ	INF.	70Ω	150Ω
4	35Z5GT	INF.	70Ω	83Ω	125Ω	100Ω	INF.	1.0Ω	300KΩ

The above measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

MEISSNER MODELS
9-1091A, 9-1091B



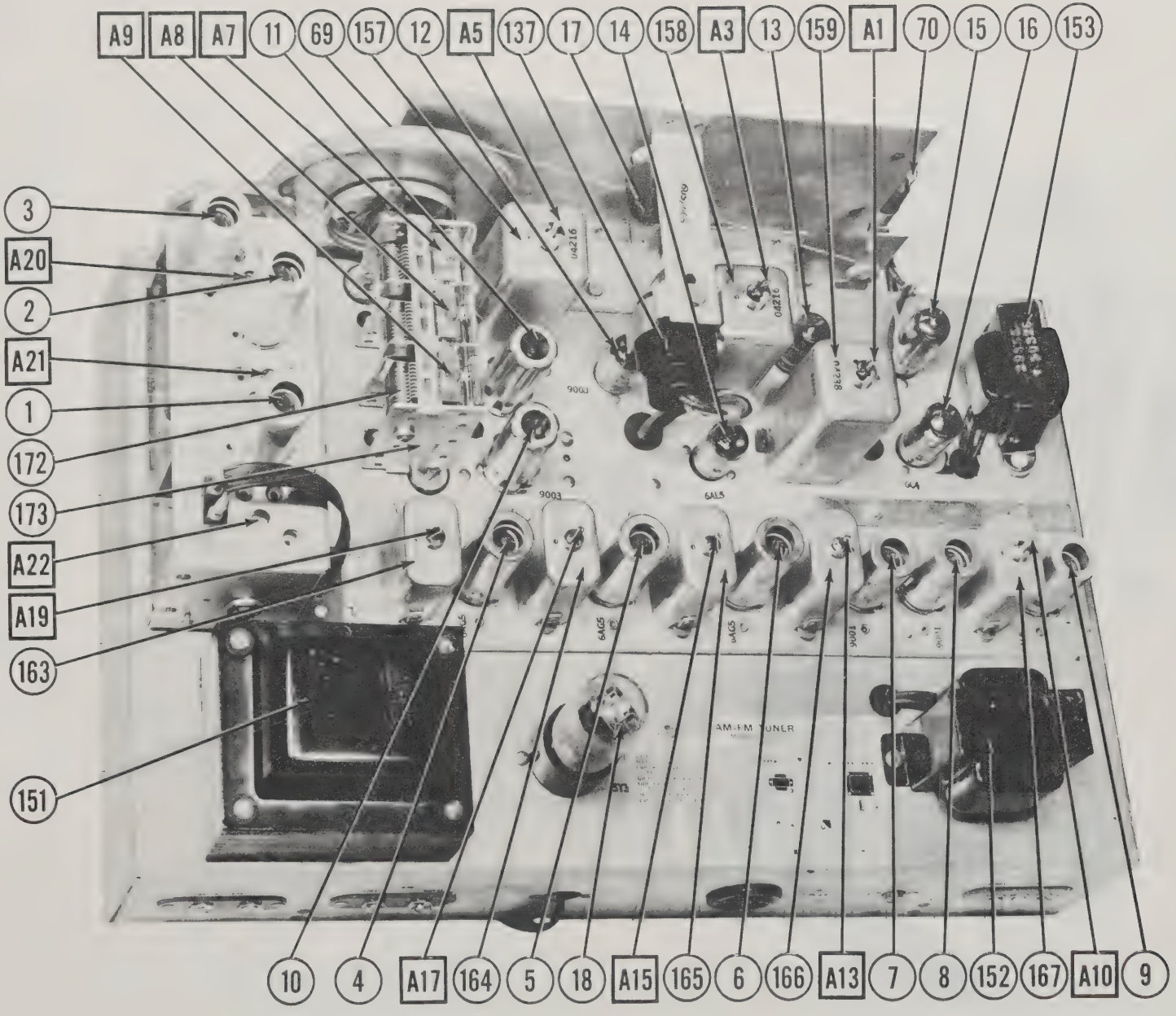
MEISSNER MODELS
9-1091A, 9-1091B PAGE 1

MEISSNER MODEL 9-1091A

TRADE NAME	Meissner, Model 9-1091A, 9-1091B
MANUFACTURER	Meissner Mfg. Co., Div. of Maguire Industries Inc., Mt. Carmel, Ill.
TYPE SET	AC Operated AM-FM Tuner
TUBES (EIGHTEEN)	Types, 6AG5 FM RF Amp., 6AG5 FM Mixer, 6C4 FM Osc., (3) 6AG5 IF Amp., (2) 9001 FM Limiter, 6AL5 FM Disc., 9003 AM RF Amp., 6BE6 AM Converter, (2) 9003 IF Amp., 6AL5 AM Det.-AVC, 6C4 1st AF Amp., 6C4 2nd AF Amp., 6U5/6G5 Tuning Eye, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.64 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	527-1620KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1948 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America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A1
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153
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A20
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A21
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A22
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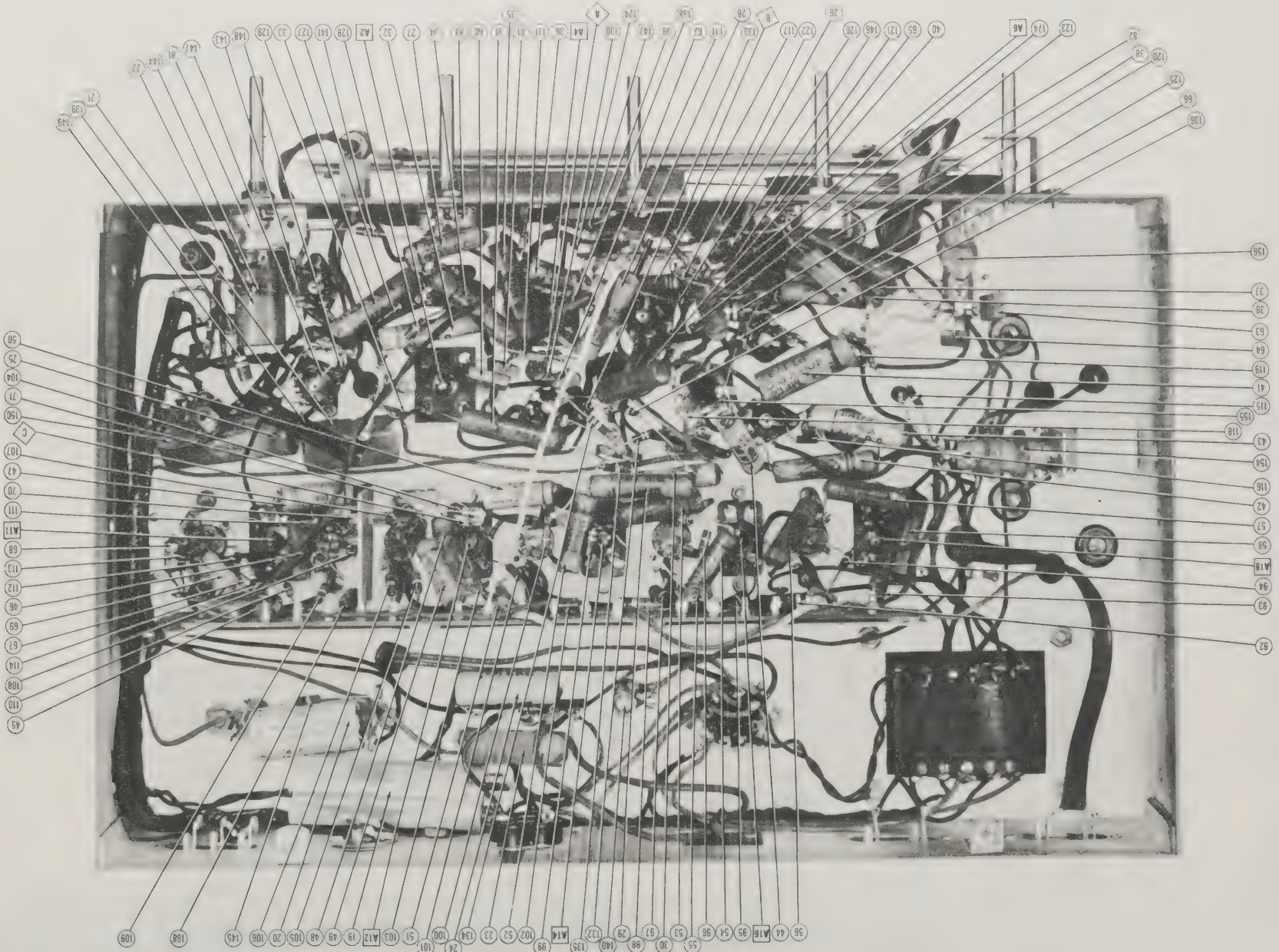
A10
9
AM-FM TUNER



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.		6AG5	6AG5	7BD	
2	FM Mixer		6AG5	6AG5	7BD	
3	FM Osc.		6C4	6C4	6BG	
4	IF Amp.		6AG5	6AG5	7BD	
5	IF Amp.		6AG5	6AG5	7BD	
6	IF Amp.		6AG5	6AG5	7BD	
7	FM Limiter		9001	9001		
8	FM Limiter		9001	9001		
9	FM Discriminator		6AL5	6AL5	6BT	
10	AM RF Amp.		9003	9003		
11	AM Converter		6BE6	6BE6	7CH	
12	IF Amp.		9003	9003		
13	IF Amp.		9003	9003		
14	AM Det.-AVC		6AL5	6AL5	6BT	
15	1st AF Amp.		6C4	6C4	6BG	
16	2nd AF Amp.		6C4	6C4	6BG	
17	Tuning Eye		6U5/6G5	6U5/6G5	6R	
18	Rectifier		5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
19A	20	450		DY-2x20-450	EL-220	AF44J	UP2245	■ Filter
B	20	450						▲ "
20	10	450		M-10-450	UT-12	PRS450-10	BR-1045	"
21	50	50		M-50-50	TA-550	PRS50-50	BR505	Cathode Bypass
22	50	50		M-50-50	TA-550	PRS50-50	BR505	" "
23	.05	600		MPH-6-05	TC-15	684-05	DT6S5	Line Filter
24	.05	600		MPH-6-05	TC-15	684-05	DT6S5	"
25	.2	600		S-6-2	TC-2	684-.2	DT6P2	Audio Coupling
26	.002	600		S-6-002	TC-22	684-002	DT6D2	" "
27	.002	600		S-6-002	TC-22	684-002	DT6D2	Tone Comp.
28	.05	200		S-4-05	TC-15	484-05	DT2S5	Audio Coupling
29	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
30	.05	200		S-4-05	TC-15	484-05	DT2S5	" "
31	.05	400		S-4-05	TC-15	484-05	DT4S5	2nd IF Plate Decoupling
32	.05	200		S-4-05	TC-15	484-05	DT2S5	2nd IF Screen Bypass
33	.05	200		S-4-05	TC-15	484-05	DT2S5	2nd IF Cathode "
34	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
35	.05	400		S-4-05	TC-15	484-05	DT4S5	1st IF Plate Decoupling
36	.05	200		S-4-05	TC-15	484-05	DT2S5	1st IF Cathode Bypass
37	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
38	.05	400		S-4-05	TC-15	484-05	DT4S5	Conv. Plate Decoup.
39	.05	200		S-4-05	TC-15	484-05	DT2S5	Conv. Screen Bypass
40	.05	400		S-4-05	TC-15	484-05	DT4S5	RF Bypass Power Supply
41	.1	400		S-4-1	TC-1	484-.1	DT4P1	RF Screen Bypass
42	.05	200		S-4-05	TC-15	484-05	DT2S5	RF Cathode Bypass
43	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
44	.05	200		S-4-05	TC-15	484-05	DT2S5	" "
45	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling
46	.01	400		S-4-01	TC-11	484-01	DT4S1	2nd Lim. Plate Decoupling
47	.01	400		S-4-01	TC-11	484-01	DT4S1	2nd Lim. Screen Bypass
48	.01	400		S-4-01	TC-11	484-01	DT4S1	1st " " "
49	.01	400		S-4-01	TC-11	484-01	DT4S1	AVC Filter
50	.01	400		S-4-01	TC-11	484-01	DT4S1	3rd IF Decoupling
51	.01	400		S-4-01	TC-11	484-01	DT4S1	RF Bypass Power Supply
52	.01	400		S-4-01	TC-11	484-01	DT4S1	3rd IF Cathode Bypass
53	.01	400		S-4-01	TC-11	484-01	DT4S1	2nd IF Decoupling
54	.01	400		S-4-01	TC-11	484-01	DT4S1	2nd IF Cathode Bypass
55	.01	400		S-4-01	TC-11	484-01	DT4S1	RF Bypass Power Supply
56	.01	400		S-4-01	TC-11	484-01	DT4S1	1st IF Decoupling
57	.01	400		S-4-01	TC-11	484-01	DT4S1	AVC Filter
58	.01	400		S-4-01	TC-11	484-01	DT4S1	Converter Plate Decoupling

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
104	47KΩ	½		BTS-47K	Yl.-Vl.-Or. 1st Limiter Grid
105	22KΩ	½		BTS-22K	Red-Red-Or. 1st Limiter Screen
106	10KΩ	½		BTS-10K	Br.-Blk.-Or. 1st Limiter Plate
107	22KΩ	½		BTS-22K	Red-Red-Or. Bleeder
108	150KΩ	½		BTS-150K	Br.-Grn.-Yl. 2nd Limiter Grid
109	22KΩ	½		BTS-22K	Red-Red-Or. 2nd Limiter Screen
110	1500Ω	½		BTS-1500	Br.-Grn.-Red 2nd Limiter Decoupling
111	22KΩ	½		BTS-22K	Red-Red-Or. Bleeder
112	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Discriminator Diode Load
113	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Discriminator Diode Load
114	100KΩ	½		BTS-100K	Br.-Blk.-Yl. De-emphasis
115	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
116	470Ω	½		BTS-470	Yl.-Vl.-Br. AM-RF Cathode
117	47KΩ	1		BTA-47K	Yl.-Vl.-Or. Screen Dropping
118	4700Ω	½		BTS-4700	Yl.-Vl.-Red AM RF Coil Shunt
119	22KΩ	½		BTS-22K	Red-Red-Or. AM Oscillator Grid
120	18KΩ	2		BT-2-18K	Br.-Gray-Or. AM Conv. Screen
121	1000Ω	½		BTS-1000	Br.-Blk.-Red AM Conv. Plate Decoupling
122	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
123	470Ω	½		BTS-470	Yl.-Vl.-Br. AM 1st IF Cathode
124	1000Ω	½		BTS-1000	Br.-Blk.-Red AM 1st IF Plate Decoupling
125	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
126	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
127	470Ω	½		BTS-470	Yl.-Vl.-Br. AM 2nd IF Cathode
128	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AM 2nd IF Screen Dropping
129	1000Ω	½		BTS-1000	Br.-Blk.-Red AM 2nd IF Plate Decoupling
130	47KΩ	½		BTS-47K	Yl.-Vl.-Or. Diode Filter
131	82KΩ	½		BTS-82K	Gray-Red-Or. Diode Load
132	120KΩ	½		BTS-120K	Br.-Red-Yl. D.A.V.C. Bias Network
133	2200Ω	½		BTS-2200	Red-Red-Red D.A.V.C. " "
134	3300Ω	½		BTS-3300	Or.-Or.-Yl. AVC Network
135	68KΩ	½		BTS-68K	Blue-Gray-Yl. AVC Network
136	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. " "
137	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Tuning Ind. Plate Load
138	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. Tuning Ind. Grid
139	10KΩ	10		AB-10K	Bleeder
140	10KΩ	10		AB-10K	"
141	82KΩ	½		BTS-82K	Gray-Red-Or. Tone Compensation
142	4.7 Meg.	½		BTS-4.7 Meg	Yl.-Vl.-Grn. Series Phono
143	3300Ω	½		BTS-3300	Or.-Or.-Red 1st AF Cathode
144	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
145	10KΩ	½		BTS-10K	Br.-Blk.-Or. AF Decoupling
146	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. Tone Compensation
147	220KΩ	½		BTS-220K	Red-Red-Yl. 2nd AF Grid
148	510Ω	½		BTS-470	Grn.-Br.-Br. 2nd AF Cathode
149	27KΩ	1		BTA-27K	Red-Vl.-Or. 2nd AF Plate Load
150	100KΩ	10		ABA-100	Hum Balance

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
151	117V AC @ .64A	550V AC @ .078A	5.0V AC @ 2.0A	6.4V AC @ 2.4A SEC. 4 6.4V AC @ 2.2A	29332		T25R52	P-2953 P-2946#

#Drill new mounting holes.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA: MEISSNER PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
152	.07-A	270Ω	10 Henries	29280	C-1709	T20C53	C-2290*	*Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MEISSNER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
59	68			MOS.5-47	MS-47	1469-00007	5W5Q7	Phono Coupling
60	10			MO.5-41	1FM-41	1468-00001	5W5Q1	AVC Coupling
61	100			MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
62	100			MO.5-31	1FM-31	1468-0001	5W5T1	" " "
63	220			MO.5-325	1FM-325	1468-00025	5W5T25	Osc. Grid Cap.
64	15				MS-415			Fixed Trimmer
65	82				1FM-475			Tone Comp.
66	320			MW.5-28	MS-38	1464-0008	1W5T8	" "
67	50			MO.5-45	1FM-45	1468-00005	5W5Q5	RF Filter-Cer.
68	50			MO.5-45	1FM-45	1468-00005	5W5Q5	" " "
69	220			MO.5-325	1FM-325	1468-00025	5W5T25	De-emphasis
70	22			MO.5-425	MS-425	1468-000025	5W5Q25	IF Coupling
71	47			MO.5-45	1FM-45	1468-00005	5W5Q5	Limiter Grid Filter
72	30			MO.5-43	MS-43	1468-00004	5W5Q3	Osc. Grid Cap.-Cer.
73	5			MOS.5-55	MS-55	1469-000005	5R5V5	Fixed Trimmer - "
74	10			MO.5-41	MS-41	1468-00001	5W5Q1	Osc. Coupling - "
75	500			MO.5-35	1FM-35	1468-0005	5W5T5	Osc. Plate Bypass-Cer.
76	1000			MW.5-21	1FM-21	1467-001	1W5D1	Mixer Screen Bypass-Cer.
77	120			MO.5-315	1FM-315	1468-00015	5W5T15	RF Coupling "
78	1000			MW.5-21	1FM-21	1467-001	1W5D1	RF Bypass Pwr. Supply "
79	120			MO.5-315	1FM-315	1468-00015	5W5T15	RF Screen Bypass "
80	120			MO.5-315	1FM-315	1468-00015	5W5T15	AVC Filter
174	.01	400		S-4-01	TC-11	484-01	DT4S1	T.E. Grid Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	MEISSNER PART No.	IRC PART No.	CLAROSTAT PART No.	
81A	1 Meg.	½	29358	D19-137X	T-112	Volume Control tapped @ 400KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 81A per instructions
C	Switch		" "	41	SW-A	" " " "
82A	2 Meg.	½	29360	D13-139	M-66-3	Treble Control
B	Shaft		Not Req.	A	Not Req.	Attach to 82A per instructions
83	2 Meg.	½	29357			Bass Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MEISSNER PART No.	IRC PART No.	
84	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
85	47KΩ	½		BTS-47K	Yl.-Vi.-Or. FM-RF Screen Dropping
86	12KΩ	2		BT-2-12K	Br.-Red-Or. FM-RF Plate Load
87	4700Ω	½		BTS-4700	Yl.-Vi.-Red FM Mixer Cathode
88	47KΩ	½		BTS-47K	Yl.-Vi.-Or. FM-Mixer Screen Dropping
89	12KΩ	2		BT-2-12K	Br.-Red-Or. FM Oscillator Plate Decoupling
90	33KΩ	½		BTS-33K	Or.-Or.-Or. FM-Oscillator Grid
91	22KΩ	½		BTS-22K	Red-Red-Or. Bleeder
92	470Ω	2		BT-2-470	Yl.-Vi.-Br. Decoupling
93	47KΩ	½		BTS-47K	Yl.-Vi.-Or. FM-Mixer Plate Decoupling
94	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
95	10KΩ	1		BTA-10K	Br.-Blk.-Or. FM-1st IF Decoupling
96	120Ω	½		BW-½-120	Br.-Red-Br. FM 2nd IF Cathode
97	10KΩ	1		BTA-10K	Br.-Blk.-Or. FM-2nd IF Decoupling
98	2200Ω	2		BT-2-2200	Red-Red-Red Decoupling
99	3300Ω	½		BTS-3300	Or.-Or.-Red 3rd-IF Transformer Shunt
100	120Ω	½		BW-½-120	Br.-Red-Br. FM 3rd IF Cathode
101	1500Ω	½		BTS-1500	Br.-Grn.-Red FM 3rd IF Decoupling
102	2700Ω	½		BTS-2700	Red-Vi.-Red Decoupling
103	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. AVC Network

JAT 6/48 #44-15 SET #25-FOLDER #15

PARTS LIST AND DESCRIPTIONS (Continued)

CHOKE (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	Inductance	DC RES.	MEISSNER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
153	80 Henries tapped @ 1.5 Henries	2500Ω tapped @ 270Ω	29355		T-50320		

R F COILS

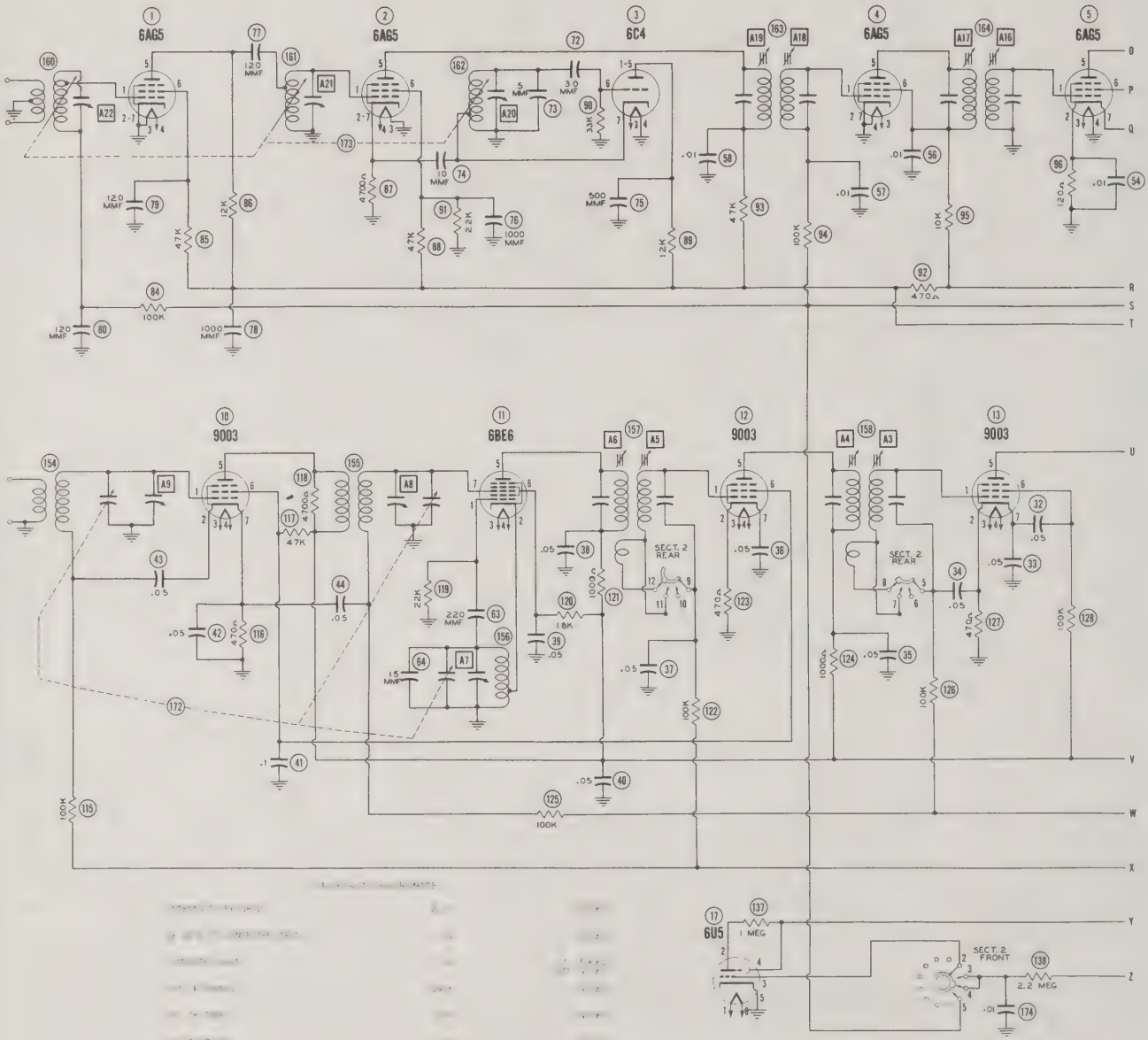
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MEISSNER PART No.	MEISSNER PART No.	
154	AM Ant.Coil	39Ω	8Ω	05036	14-1026	
155	AM RF Coil	39Ω	5.2Ω	05038	14-1027	
156	AM Osc.Coil		6.5Ω	05040	14-1040	
157	AM Input IF	6.7Ω	7Ω	04216		.1Ω tap
158	AM Inter.IF	6.7Ω	7Ω	04216		.1Ω tap
159	AM OutputIF	6Ω	6.7Ω	04238		
160	FM Ant.Coil	0Ω	0Ω			Part of FM Tuner
161	FM RF Coil		0Ω			" " " "
162	FM Osc. Coil		0Ω			" " " "
163	FM Input IF	.8Ω	.8Ω	04193	16-6665	
164	FM Inter. IF	.8Ω	.8Ω	04193	16-6665	
165	FM Inter.IF	.8Ω	.8Ω	04193	16-6665	
166	Limiter Trans.	.8Ω	.8Ω	04193	16-6665	
167	Disc. Trans	.8Ω	1Ω	04194	17-3484	
168	RF Choke		.3Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MEISSNER PART No.		
169	Bayonet	6-8	0.25	Blue			Type 44
170	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	MEISSNER PART No.	NOTES
171	Switch		Band
172	3 Gang Var. Cap.		(33-424MMF, 33-424MMF, 28-230MMF)
173	FM Tuning Assby.	04654-B	



IF=455KC AM

IF=10.7MC FM

*1MEG RESISTANCE ACROSS HIGH IMPEDANCE OUTPUT TERMINALS.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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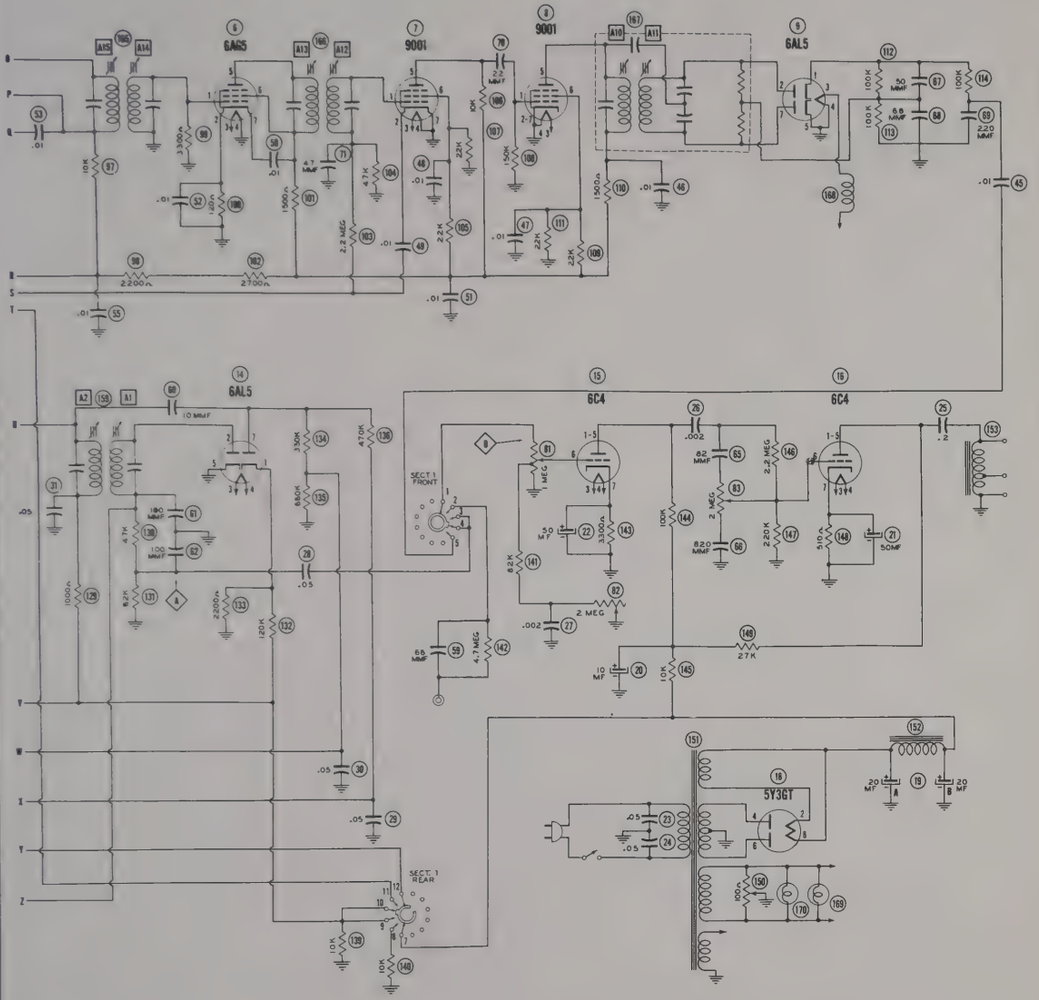

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485-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

AM READINGS TAKEN IN BROAD BAND POSITION.

VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡	1	6AG5	-.8VDC	0V.	0V.	6.4VAC	170VDC	130VDC	0V.	-
‡	2	6AG5	0V.	2.5VDC	0V.	6.4VAC	250VDC	77VDC	2.5VDC	-
‡	3	6C4	150VDC	0V.	6.4VAC	0V.	150VDC	-3VDC§	0V.	-
‡	4	6AG5	-.8VDC	0V.	6.4VAC	0V.	165VDC	165VDC	0V.	-
‡	5	6AG5	0V.	1.3VDC	6.4VAC	0V.	150VDC	150VDC	1.3VDC	-
‡	6	6AG5	0V.	1.1VDC	6.4VAC	0V.	130VDC	130VDC	1.1VDC	-
‡	7	9001	-.6VDC	0V.	6.4VAC	0V.	135VDC	60VDC	0V.	-
‡	8	9001	-.6VDC	0V.	6.4VAC	0V.	150VDC	60VDC	0V.	-
‡	9	6AL5	.1VDC	-2.9VDC	6.3VAC	0V.	0V.	0V.	-6VDC	-
	10	9003	-.6VDC	3.5VDC	3.2VAC	3.2VAC	260VDC	100VDC	3.5VDC	-
	11	6BE6	-10.5VDC§	0V.	3.2VAC	3.2VAC	252VDC	125VDC	-.2VDC	-
	12	9003	0V.	4.5VDC	3.2VAC	3.2VAC	252VDC	100VDC	4.5VDC	-
	13	9003	0V.	3VDC	3.2VAC	3.2VAC	252VDC	85VDC	3VDC	-
	14	6AL5	4.2VDC	-.3VDC	3.2VAC	3.2VAC	0V.	0V.	0V.	-
	15	6C4	92VDC	0V.	3.2VAC	3.2VAC	92VDC	0V.	2.2VDC	-
	16	6C4	88VDC	0V.	3.2VAC	3.2VAC	88VDC	0V.	4VDC	-
	17	6U5/6G5	3.2VAC	150VDC	-.6VDC	260VDC	0V.	3.2VAC	-	-
	18A	5Y3GT	0V.	280VDC	0V.	275VAC	0V.	275VAC	260VDC	280VDC
‡	18B	5Y3GT	0V.	280VDC	0V.	275VAC	0V.	275VAC	260VDC	280VDC

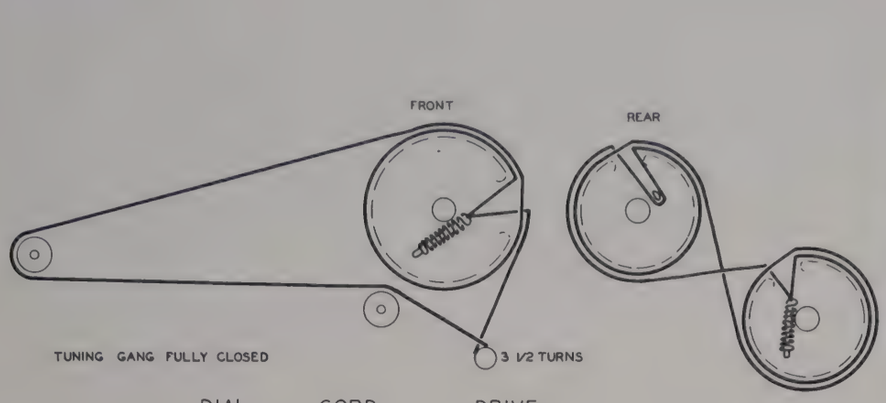
§TAKEN WITH VACUUM TUBE VOLTMETER.

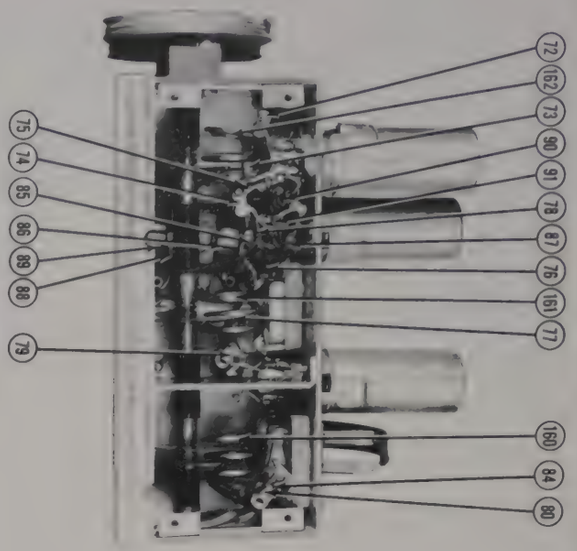
RESISTANCE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡	1	6AG5	2 Meg.	0Ω	0Ω	.1Ω	32KΩ	67KΩ	0Ω	-
‡	2	6AG5	0Ω	4.7KΩ	0Ω	.1Ω	67KΩ	20KΩ	4.7KΩ	-
‡	3	6C4	32KΩ	INF.	.1Ω	0Ω	32KΩ	33KΩ	0Ω	-
‡	4	6AG5	2 Meg.	0Ω	.1Ω	0Ω	30KΩ	30KΩ	0Ω	-
‡	5	6AG5	.8Ω	120Ω	.1Ω	0Ω	30KΩ	30KΩ	120Ω	-
‡	6	6AG5	.8Ω	120Ω	.1Ω	0Ω	26KΩ	26KΩ	120Ω	-
‡	7	9001	47KΩ	0Ω	.1Ω	0Ω	35KΩ	22KΩ	0Ω	-
‡	8	9001	150KΩ	0Ω	.1Ω	0Ω	26KΩ	22KΩ	0Ω	-
‡	9	6AL5	200KΩ	140KΩ	.2Ω	0Ω	0Ω	INF.	140KΩ	-
	10	9003	1.5 Meg.	500Ω	25Ω	25Ω	9.5KΩ	56KΩ	500Ω	-
	11	6BE6	24KΩ	1Ω	25Ω	25Ω	10.5KΩ	27KΩ	800KΩ	-
	12	9003	1.5 Meg.	500Ω	25Ω	25Ω	10.5KΩ	56KΩ	500Ω	-
	13	9003	800KΩ	500Ω	25Ω	25Ω	10.5KΩ	110KΩ	500Ω	-
	14	6AL5	2.2KΩ	130KΩ	25Ω	25Ω	0Ω	INF.	950KΩ	-
	15	6C4	120KΩ	INF.	25Ω	25Ω	120KΩ	800KΩ	3.5KΩ	-
	16	6C4	52KΩ	INF.	25Ω	25Ω	52KΩ	240KΩ	560Ω	-
	17	6U5/6G5	25Ω	1 Meg.	2.5 Meg.	9.5KΩ	0Ω	25Ω	-	-
	18A	5Y3GT	INF.	9.5KΩ	INF.	115Ω	INF.	110Ω	9.5KΩ	9.5KΩ
‡	18B	5Y3GT	INF.	22KΩ	INF.	115Ω	INF.	110Ω	22KΩ	22KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.





DATE 3/48-4.5-15 SET #35-FOLDER #15

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The design of the AM and FM IF amplifiers of this tuner require the use of an FM signal generator and oscilloscope to insure proper alignment.

To set pointer turn tuning cap. fully closed and set pointer to last r ference mark at low freq. end of dial.

Connect 500Ω resistor across 500Ω audio output terminals before turning tuner on.

AM ALIGNMENT

Use frequency modulated signal with 60∿ modulation and 30KC sweep. Use 120∿ sawtooth in scope for horizontal deflection.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 1 (grid) 9003 2nd IF tube (13) Low side to chassis.	455KC (freq.mod. 30KC sweep)	"AM SHARP" (1 position clockwise)	Tuning cap. fully open.	Vertical input to Point ◈ Ground to chassis.	A1,A2	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
2	.1 MFD.	High side to Pin 1 (grid) 9003 1st IF Tube (12). Low side to chassis.	"	"	"	"	A3,A4.	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Turn bandswitch to "AM BROAD" (2 positions clockwise). Pattern should still be symmetrical about 455KC. Return switch to "AM Sharp".
3	.1 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	"	A5,A6	"
	DUMMY ANTENNA	**SIGNAL GENERATOR COUPLING**	**SIGNAL GENERATOR FREQUENCY**	**BAND SWITCH POS.**	**RADIO DIAL SETTING**	**OUTPUT METER**	**ADJUST**	**REMARKS**
4	200MMFD	High side to AM ant. terminal. Low side to chassis.	1500KC (AM mod. 400∿)	"AM SHARP" (1 position clockwise)	1500KC	Across 500Ω output terminals.	A7	Adjust for maximum output.
5	200MMFD	"	"	"	Tune for maximum output.	"	A8,A9.	" " " "

FM ALIGNMENT

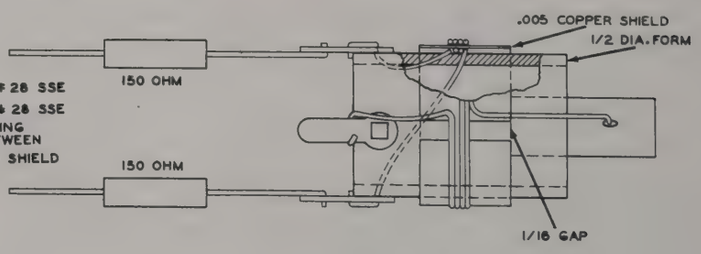
When aligining FM RF use dummy antenna and coupling tansformer constructed as shown in sketch.

Use frequency modulated signal with 60∿ modulation and 400KC sweep. Use 120∿ sawtooth in scope for horizontal deflection.

Calibration of FM oscillator coil and tracking of FM antenna and FM RF coils may be accomplished at 98MC by slightly moving the center turn of coil off the coil axis and at 88MC by slightly spreading or compressing the turns of the coil.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6	.005MFD Mica Cap.	High side to Pin 1 (grid) 9003 1st Limiter Tube (7). Low side to chassis near same tube.	10.7MC (freq.mod. 400KC sweep)	FM (fully clockwise)	High freq. end of dial.	Vertical input to Point ◈ Ground to chassis.	A10	Adjust for maximum amplitude of peaks of pattern per Fig. 2.
7	"	"	"	"	"	"	A11	Adjust for maximum straightness of crossover lines with crossover occuring at center of pattern of Fig. 2. Repeat Steps 6 & 7 until no further improvement can be made.
8	"	High side to Pin 1 (grid) 6AG5 3rd IF Tube (6). Low side to chassis near same tube.	"	"	"	Vertical input to Point ◈ Ground to chassis.	A12,A13	Remove 9003 2nd Limiter tube from socket. Adjust for maximum amplitude, coincidence and symmetry of pattern per Fig. 3.
9	"	High side to Pin 1 (grid) 6AG5 2nd IF Tube (5). Low side to chassis near same tube.	"	"	"	"	A14,A15	Adjust for maximum amplitude, coincidence and symmetry of pattern per Fig. 3.
10	"	High side to Pin 1 (grid) 6AG5 1st IF Tube (4). Low side to chassis near same tube.	"	"	"	"	A16,A17	"
11	"	Remove FM Mixer Tube (2) 6AG5 & temporarily connect insulated lead to Pin 1 and replace tube in socket. Connect high side of sig. gen. to this lead. Low side to chassis.	"	"	"	"	A18,A19	Adjust for maximum amplitude, coincidence and symmetry of pattern per Fig. 3. Care should be taken not to disturb the mixer plate lead after IF alignment is completed as it will detune the 1st IF primary.
12	300Ω See prealignment notes.	To FM dipole terminals.	107.9MC (freq.mod. 400KC sweep)	"	Channel 300	"	A20	Adjust for coincidence of pattern per Fig. 3.
13	"	"	"	"	"	"	A21,A22	Adjust for maximum amplitude. Replace 2nd limiter tube. Check calibration and tracking at 98 and 88 MC per prealignment notes.

FIG. 1 FIG. 2 FIG. 3



OLYMPIC
MODEL 8-618

OLYMPIC MODEL 8-618

TRADE NAME	Olympic, Model 8-618
MANUFACTURER	Olympic Radio & Tel. Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	AC Operated Combination Phono-Radio 2 Band Superheterodyne Receiver with Loop Ant.
TUBES (SIX)	Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING .62 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1700KC — SHORT WAVE 5.7-18.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Before starting alignment turn tuning cap. fully closed and mark position of pointer. This is index mark referred to in Steps 3 & 6 below.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 4 (grid) 6SK7. Low side to chassis.	455KC	BC (center pos.)	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output
2	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	"	"	"	"	A3,A4	" " " "
3		Loop	1700KC	"	5-13/16" from index mark	"	A5	" " " "
4		"	1400KC	"	Tune for maximum output.	"	A6,A7	" " " "
5		"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.
6		"	18MC	SW (right)	5-13/16" from index mark.	"	A9	Adjust for maximum output Tune sig. gen. to 18.91MC. If signal is not heard retune sig. gen. to 18MC and open trimmer to next peak. Adjust for maximum output.
7		"	"	"	Tune for maximum output.	"	A10, A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 6 & 7 until no further improvement can be made.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-#485-16 SET #35-FOLDER #16

PARTS LIST AND DESCRIPTIONS

OLYMPIC MODEL -21-

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SG7	6SG7	6BK	
2	Converter	6SA7	6SA7	6R	
3	IF Amp.	6SK7	6SK7	6N	
4	Det.-AVC-AF	6SQ7	6SQ7	6Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	OLYMPIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	30	450		DY-313	EL-330	AF88J4A	UP222450#	Filter - Blue
B	20	450						" - Red
C	20	25						Cathode Bypass-Yl.
8	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
10	.001	600		S-6-001	TC-21	684-001	DT6D1	Feedback
11	.02	400		S-4-02	TC-12	484-02	DT4S2	Audio Coupling
12	.01	600		S-6-01	TC-11	684-01	DT6S1	" "
13	.02	400		S-4-02	TC-12	484-02	DT4S2	Cathode Bypass
14	.01	600		S-6-01	TC-11	684-01	DT6S1	Conv. Screen Bypass
15	.02	400		S-4-02	TC-12	484-02	DT4S2	AVC Filter
16	.1	400		S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
17	.01	600		S-6-01	TC-11	684-01	DT6S1	RF Screen Bypass
18	.006	600		S-6-006	TC-26	684-006	DT6D6	Ext. Ant. Isolation
19	.1	400		S-4-1	TC-1	484-.1	DT4P1	AF Plate Decoupling
20	330	500		MO.5-34	1FM-335	1468-00035	5W5T4	Tone Comp.
21	220	500		MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Decoupling
22	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	IF Coupling
23	2700	300						Fixed Pad
24	47	500		MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.
25	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

#Parallel sections to obtain desired capacity.

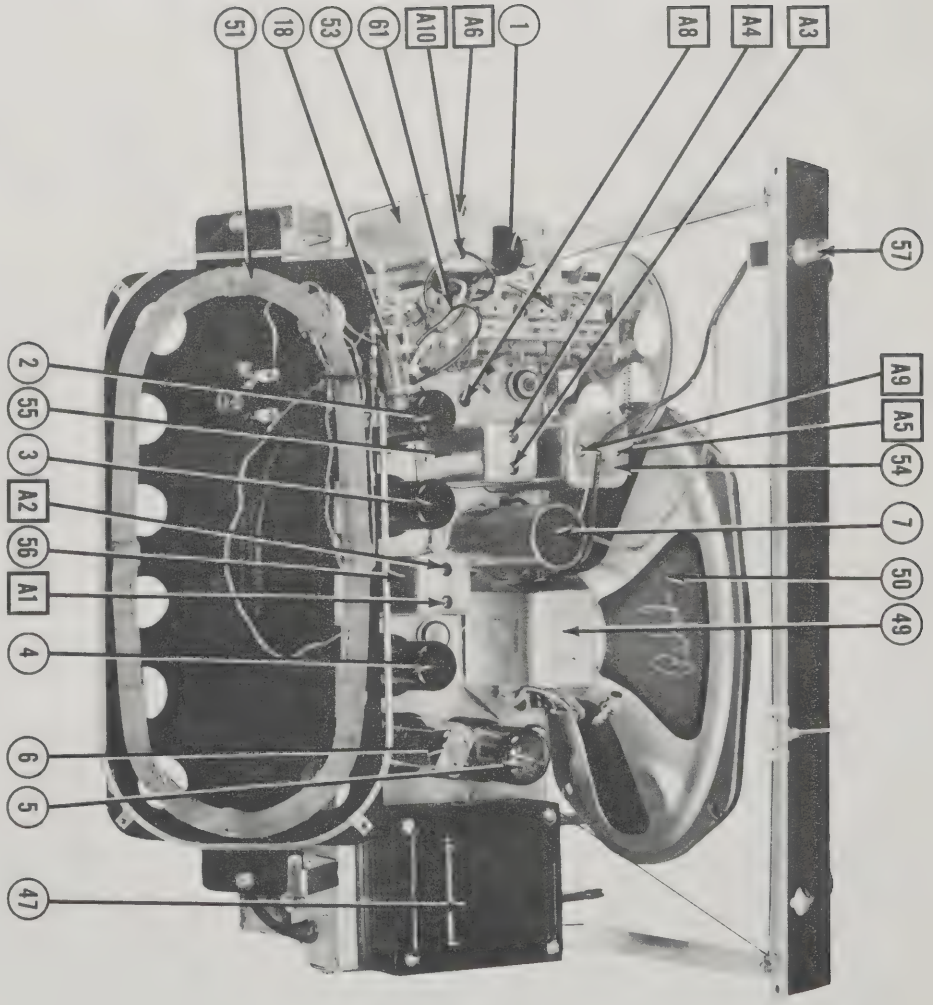
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	CLAROSTAT PART No.	
26A	2 Meg.	½	PT-105	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 26A per instructions
27A	500KΩ	½	PT-106	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 27A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
28	22KΩ	½		BTS-22K	Red-Red-Or. Antenna Loading
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. RF Grid
30	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
31	22KΩ	2		BT-2-22K	Red-Red-Or. Converter Screen Dropping
32	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
33	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
34	47KΩ	2		BT-2-47K	Yl.-Vi.-Or. Screen Dropping
35	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
36	330Ω	½		BTS-3300	Or.-Or.-Red AF Cathode
37	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Grid
38	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
39	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Decoupling
40	330Ω	1		BW-1-330	Or.-Or.-Br. Output Cathode
41	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. Tone Compensation
42	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Series Phono
43	330KΩ	½		BTS-330K	Or.-Or.-Yl. Phono Shunt
44	4700Ω	½		BTS-4700	Yl.-Vi.-Red Parasitic Suppressor
45	220Ω	½		BW-g-220	Red-Red-Br. Decoupling
46	100KΩ	3		BT-2-100K	Br.-Blk.-Yl. Bleeder

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
47	117V AC @ .62A	660V CT @ .085A	5.1V AC @ 2.0A	6.4V AC @ 2.0A		P-6013	T22R05	P-2053

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
48	5450Ω	3.1Ω	310Ω	.6Ω	Part of SK-325	A-3310	T-2587	A-2901	

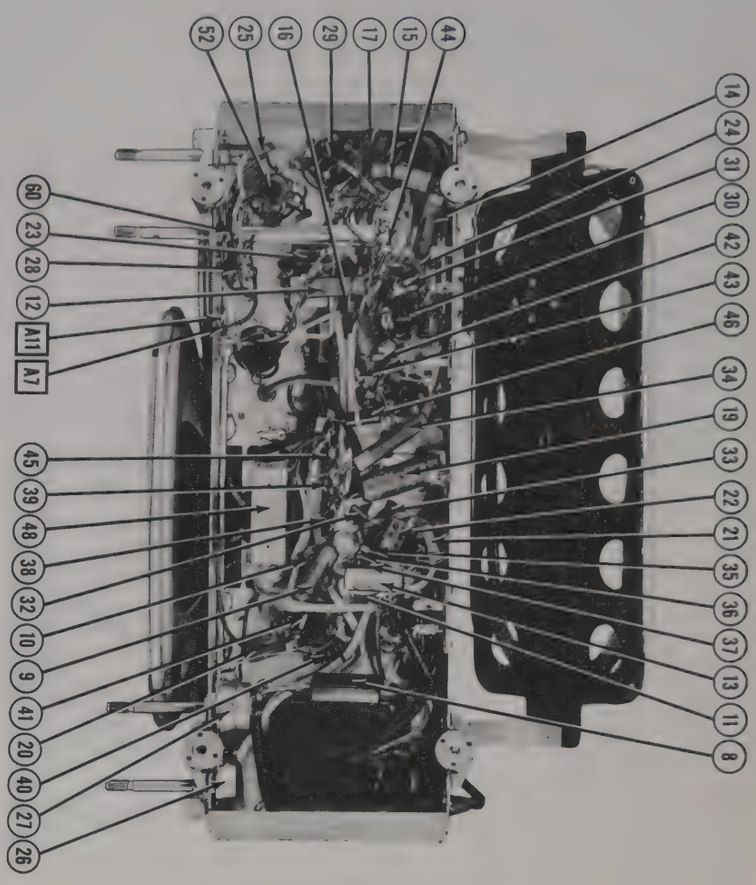
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	OLYMPIC PART No.	JENSEN PART No.	QUAM PART No.	
49	500Ω	3.1Ω	SK-325			
	CONE DIA.	VC DIA.				
50	6"x9"	13/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
51A	BC Loop Ant.	.3Ω	.6Ω	LP213		
B	SW "		0Ω			
C	Ant. Ldg. Coil		11Ω			
52A	BC Ant. Ldg. Coil		1.5Ω	CL211		
B	SW Ant. Ldg. Coil		0Ω			
53A	BC RF Coil	9Ω	2.7Ω	CL224		
B	SW " "	6Ω	.1Ω			
54A	BC Osc.Coil	.5Ω	5.1Ω	CL212		
B	SW " "	0Ω	0Ω			
55	Input IF	20.5Ω	20.5Ω	TR707		
56	Output IF	18.5Ω		TR708		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.		
57	Bayonet	6-8	0.15	Brown			Type 47
58	"	6-8	0.15	"			" " -Not used in all models.

PHONO CARTRIDGE

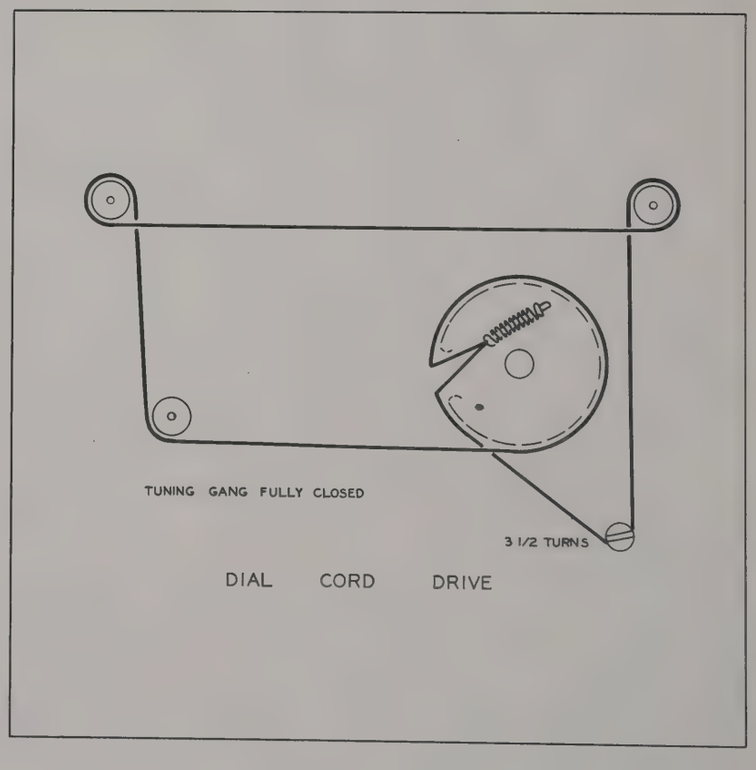
ITEM No.	REPLACEMENT DATA		REMARKS
	OLYMPIC PART No.	ASTATIC PART No.	
59		L-70-A	L-70 original part.

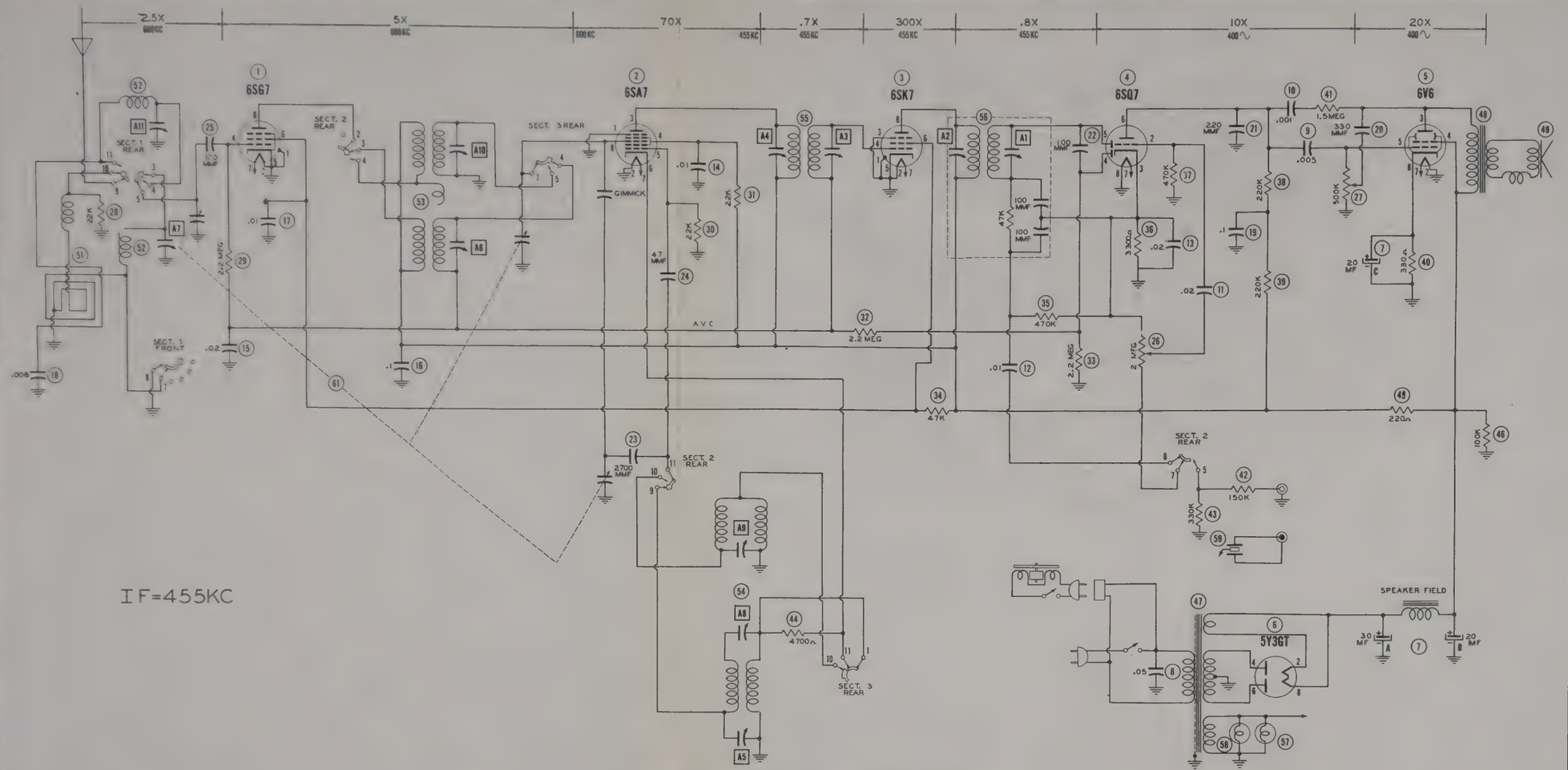
MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
60	Switch		Phono-Band
61	3 Gang Var. Cap.	CV-144	(17-518MMF) each section

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six Phillips head wood screws holding panel back of dial pointer track.
3. Remove phono-motor and phono-pickup plug from chassis.
4. Remove nine wood screws holding record changer mounting board in cabinet. Remove changer and board from cabinet.
5. Remove six screws holding chassis in cabinet. Remove chassis from cabinet.





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	-.8VDC	0V.	80VDC	6.4VAC	255VDC
2	6SA7	0V.	0V.	295VDC	115VDC	-7.5VDC§	0V.	6.4VAC	-.2VDC
3	6SK7	0V.	0V.	0V.	-.2VDC	0V.	80VDC	6.4VAC	295VDC
4	6SQ7	0V.	0V.	1VDC	2VDC	0V.	125VDC	6.4VAC	0V.
5	6V6	0V.	0V.	255VDC	300VDC	0V.	225VDC	6.4VAC	17VDC
6	5Y3	0V.	340VDC	0V.	330VAC	0V.	330VAC	0V.	340VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	0Ω	7 Meg.	0Ω	150KΩ	.1Ω	100KΩ
2	6SA7	0Ω	0Ω	100KΩ	120KΩ	22KΩ	.5Ω	.1Ω	5 Meg.
3	6SK7	0Ω	0Ω	0Ω	5 Meg.	0Ω	150KΩ	.1Ω	100KΩ
4	6SQ7	0Ω	500KΩ	3KΩ	500KΩ	2.5 Meg.	540KΩ	.1Ω	0Ω
5	6V6	0Ω	0Ω	100KΩ	100KΩ	500KΩ	1.6 Meg.	.1Ω	330Ω
6	5Y3	INF.	100KΩ	INF.	103Ω	INF.	110Ω	INF.	100KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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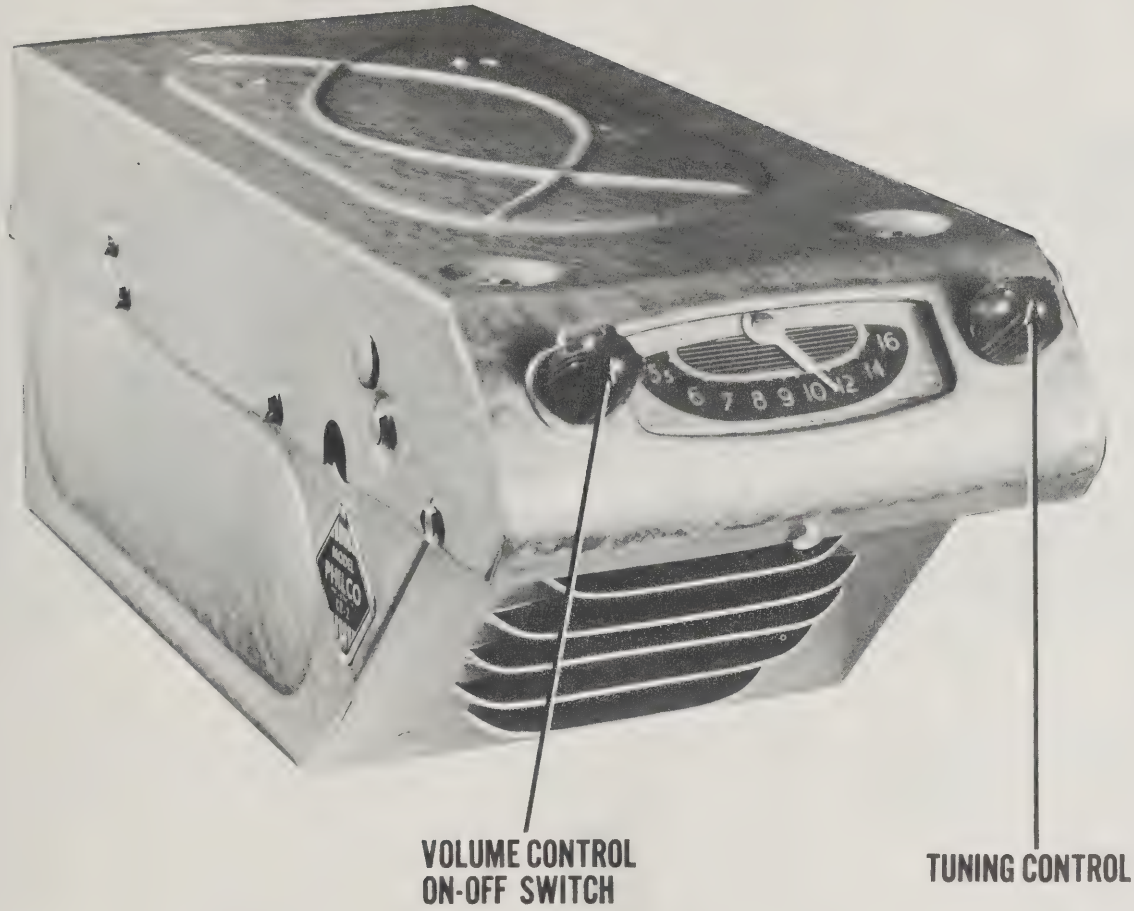
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHILCO
MODEL CR-2



PHILCO
MODEL CR-2

PHILCO MODEL CR-2

TRADE NAME	Philco, Model CR-2
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7A5 Power Output, 7Y4 Rectifier.
POWER SUPPLY	6 Volts Storage Battery
TUNING RANGE—BROADCAST	550-1600KC RATING 4.2 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to reference dot at low freq. end of dial.

In Steps 2 & 3 connect a 30MMFD cap. from ant. receptacle to chassis. Connect high side signal generator in series with 30MMFD cap. to antenna receptacle. Low side to chassis. These values of capacitance are critical and if not adhered to closely will result in misalignment of receiver.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to ant. receptacle. Low side to chassis.	455KC	Tuning cap. fully closed.	Across voice coil	A1, A2, A3.	Ground Pin 4 of 7B8. Adjust A1, A2, A3 in order given for maximum output and then repeat.
2	2-30MMFD cap.	(See prealignment instructions)	1600KC	Tuning cap. fully open.	"	A4	Remove ground from Pin 4 of 7B8. Adjust A4 for maximum output.
3	"	"	1400KC	Tune for maximum output.	"	A5	Adjust for maximum output.

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DATE 3/48-#485-17 SET #35-17

PARTS LIST AND DESCRIPTIONS

PHILCO MODEL CR-2

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	7V	
2	Converter	7B8	7B8	8X	
3	IF Amp.	7A7	7A7	7V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7A5	7A5	6AA	
6	Rectifier	7Y4	7Y4	5AE	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	10	25	61-0068	DY-310	5L-731	AF43F4A	UP15D25C	■ Filter
B	10	150						▲ "
C	20	25						Cathode Bypass
8	.015	1000	61-0138	TM-16-015		1084-015	MD16S15	Buffer
9	.5	120	61-0137	S-2-5	TC-5	484-.5	DT2P5	Hash Filter
10	.5	120	61-0137	S-2-5	TC-5	484-.5	DT2P5	" "
11	.03	600	61-0119	S-6-03	TC-13	484-03	DT6S3	Output Plate Bypass
12	.01	200	61-0120	S-4-01	TC-11	484-01	DT2S1	Audio Coupling
13	.004	600	61-0179	S-6-004	TC-24	684-004	DT6D4	" "
14	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	RF Bypass Power Supply
15	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	IF Cathode Bypass
16	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Screen Bypass
17	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Cathode Bypass
18	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Coupling
19	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	AVC Filter
20	250	500	60-10245307	MO.5-325	1FM-325	1468-00025	5W5T25	Hash Filter
21	250	500	60-10245307	MO.5-325	1FM-325	1468-00025	5W5T25	" "
22	8		60-00105407					Fixed Trimmer-See Note
23	100	500	60-10105407	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
24	100	500	60-10105407	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

Note-Not used in some models.

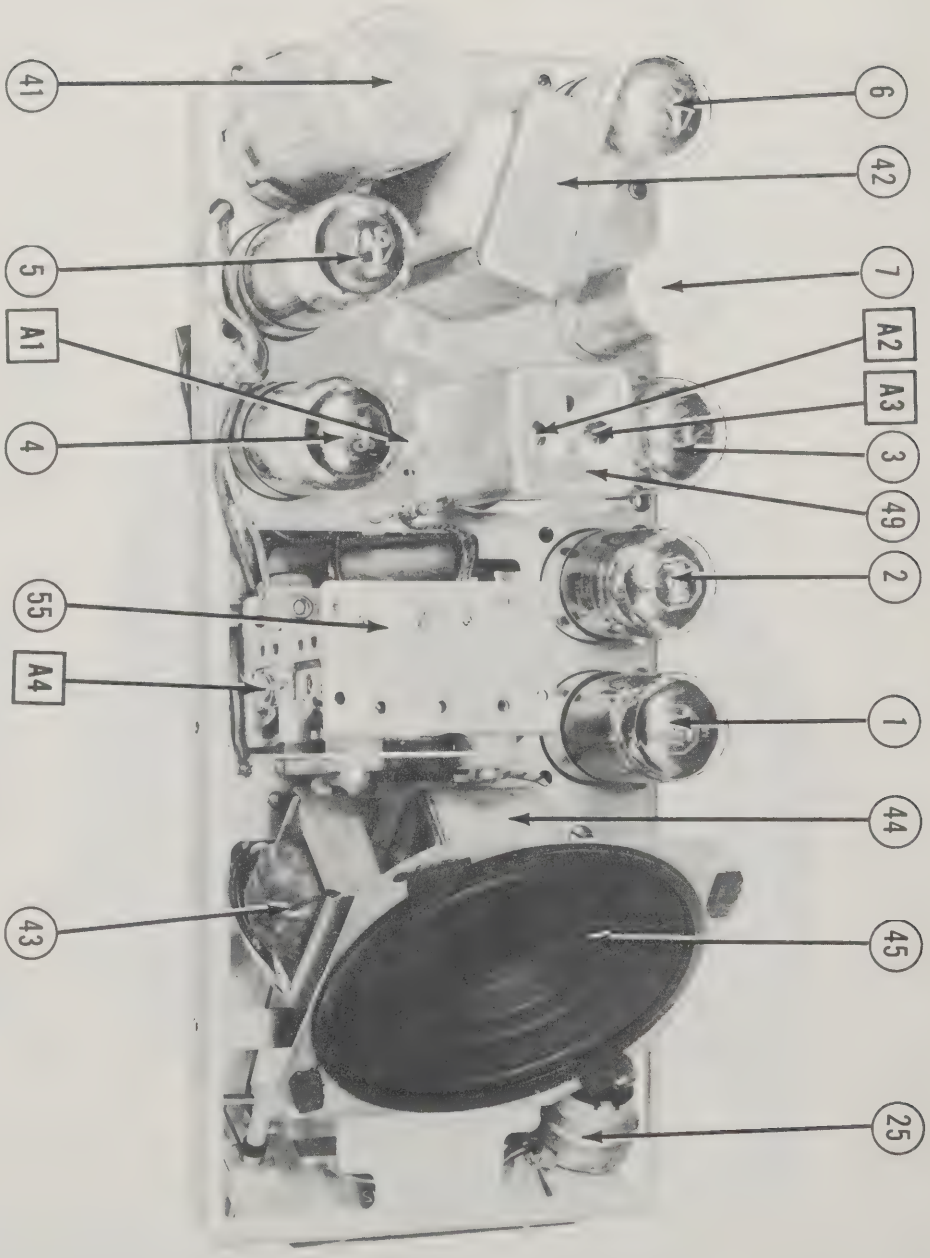
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	350KΩ	½	670042	D13-132		Volume Control
B	Shaft		Not Req.	N		Attach to 25A per instructions
C	Switch		" "	41		" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
26	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. RF Plate Load
27	22KΩ	½	66-3223340	BTS-22K	Red-Red-Or. Converter Grid
28	2200Ω	½	66-1223340	BW-½-220	Red-Blk.-Br. Pk-Converter Cathode
29	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
30	200Ω	½	66-1223340	BW-½-220	Red-Blk.-Br. IF Cathode
31	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
32	15 Meg.	½	66-6153340	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
33	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
34	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
35	200Ω	½	66-1223340	BW-½-220	Red-Blk.-Br. Output Cathode
36	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Screen Dropping
37	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Decoupling
38	2700Ω	1	66-2274340	BTA-2700	Red-Vi.-Red Filter
39	220Ω	½	66-1223340	BW-½-220	Red-Red-Br. Hash Suppression
40	220Ω	½	66-1223340	BW-½-220	Red-Red-Br. " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA RADIART PART No.	INSTALLATION NOTES
41A	Interrupter	6.3	115~	83-0025	5326P	
B				45-6307		Alternate vibrator.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
42	6.0V DC @ 1.8A	300V CT @ .038A			65-0404	P-6301		

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
43	2600Ω	3.3Ω	200Ω	.6Ω	Part of 73-0027	A-3276†	T22S45†	A-2928†	†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PHILCO PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-113#		#Fabricate new mounting bracket.
44A	PM	3.3Ω	73-0027-1	Mod. P4-X	4A 7†	
B			73-0027			Alternate field coil speaker.
	CONE DIA.	VC DIA.				
45	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA MEISSNER PART No.	
4[illegible]	Ant. Choke Coil		.5Ω	65-0166		
47	Ant. Coil		2.5Ω	65-0196		
48	Osc. Coil	3Ω	5.5Ω	65-0194	14-1040	
49	Input IF	19Ω	19Ω	65-0191	16-6658	
50	Output IF	53Ω	7Ω	65-0192		Pri. Untuned; Sec. Tuned
51	RF Choke		0Ω	[illegible]477		
52	" "		0Ω	65-0204		

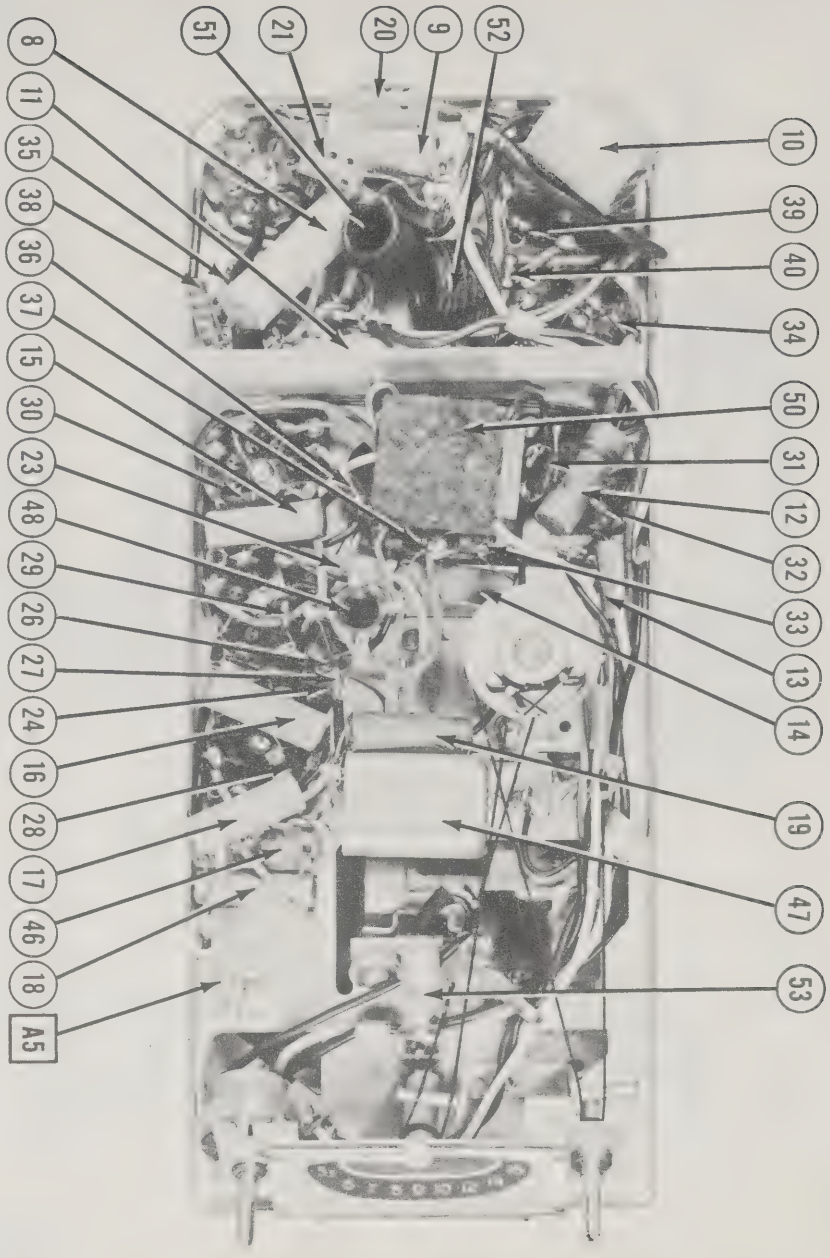
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA	INSTALLATION NOTES
53	Bayonet	6-8		White	34-2039		Type 422

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
[illegible]	[illegible]	[illegible]	[illegible], 27-202MMF)

CHASSIS—BOTTOM VIEW



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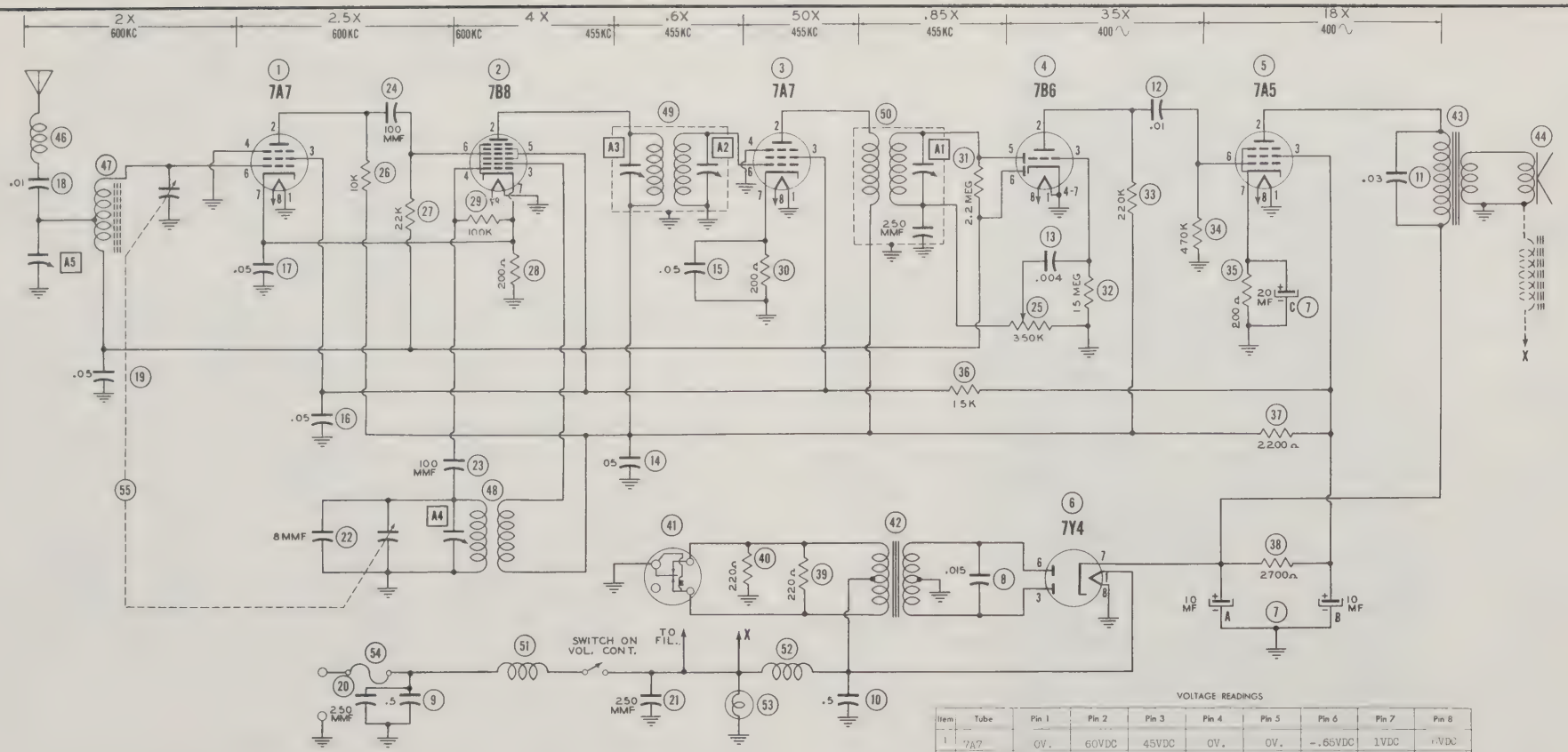

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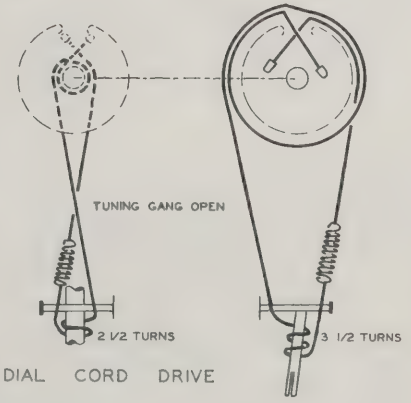

DIAL CORD DRIVE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	60VDC	45VDC	0V.	0V.	-.65VDC	1VDC	VDC
2	7B8	0V.	75VDC	75VDC	-19.5VDC§	45VDC	-.6VDC	1VDC	VDC
3	7A7	0V.	75VDC	75VDC	0V.	0V.	0V.	1VDC	VDC
4	7B6	0V.	60VDC	-.6VDC	0V.	-.6VDC	-.65VDC	0V.	6VDC
5	7A5	0V.	90VDC	90VDC	0V.	0V.	0V.	7VDC	VDC
6	7Y4	0V.C	0V.	150VAC	0V.	0V.	150VAC	122VDC	0V.

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0Ω	160KΩ	165KΩ	0Ω	0Ω	2.5 Meg.	200Ω	
2	7B8	0Ω	1	1	1	1	1 Meg.	200Ω	
3	7A7	0Ω	150KΩ	165KΩ	0Ω	0Ω	19Ω	200Ω	
4	7B6	0Ω	370KΩ	15 Meg.	0Ω	350KΩ	2.5 Meg.	0Ω	
5	7A5		150KΩ	150KΩ	INF.	INF.	500KΩ	200Ω	
6	7Y4		INF.	26Ω	INF.	INF.	24Ω	150KΩ	

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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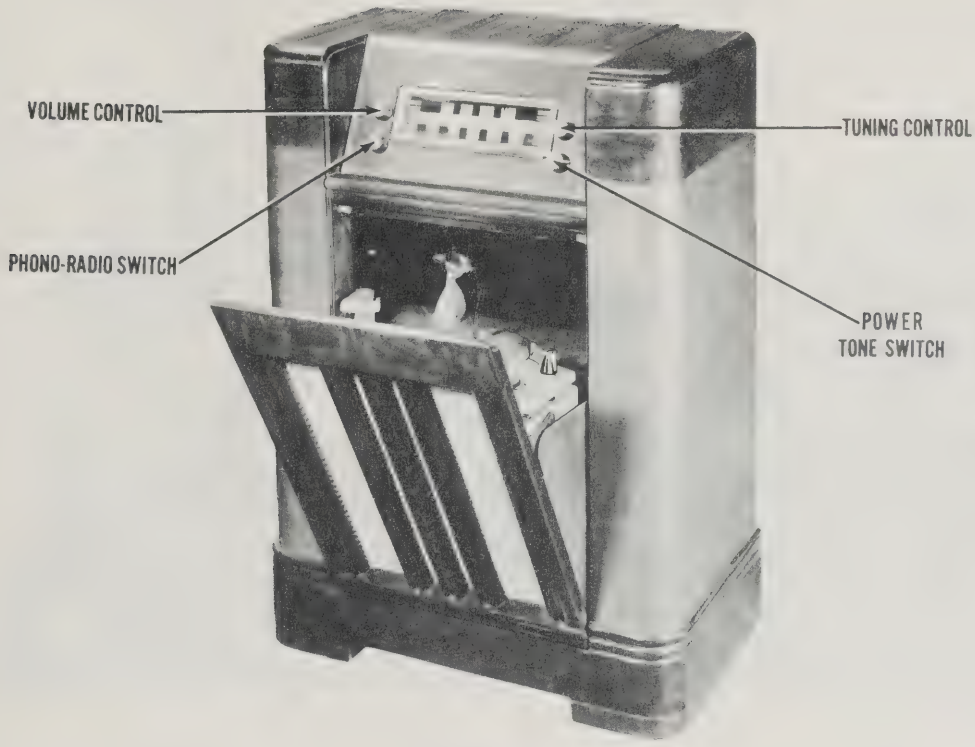
485-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage



PHILCO MODEL 48-1262

TRADE NAME	Philco, Models 48-1262, 48-1282
MANUFACTURER	Philco Radio Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Combination Phono Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 14AF7 Converter, 7B7 IF Amp., 7B7 IF Amp., 7C6 Det.-AVC-AF, 35L6GT Power Output, 50X6 Rectifier.
POWER SUPPLY	105-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .37 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer at index mark at left end of dial backplate.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receivdr is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3,A4.	Preset A3 by tightening it firmly. Then adjust A1, A2, A3 and A4 for maximum output.
2		Loop	1600KC	5-7/8" from index mark.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Loosen wing nut holding loop antenna in cabinet.
3. Unsolder loop leads from chassis. Remove loop from cabinet.
4. Remove speaker leads from chassis.
5. Unsolder phono-motor leads from black leads under record changer.
6. Unsolder phono-pickup leads from terminal strip mounted to cabinet.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
8. Remove four hex head screws holding chassis in cabinet. Remove chassis from cabinet.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-#485-18 SET #35-FOLDER #18

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	[illegible]	14AF7	14AF7	[illegible]	
2	[illegible]	7B7	7B7	8V	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	7W	
5	[illegible]	35L6T	35L6T	7AC	
6	Rectifier	50X6	50X6		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7	15	200	30-2575-11	M-16-250	UT-162	PRS250-16	BR1625	Filter
8	15	200	30-2575-11	M-16-250	UT-162	PRS250-16	BR1625	"
8A	75	250	30-2575-17	DY-406		PRSA250-20-20		" - Or.
B	10	250				PRS450-40		" - Red
10	.05	400	61-0122	S-4-01	TC-15	484-01	DT4S5	Line Filter
11	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
12A	.05	400	61-0122	S-4-01	TC-15	484-05	DT4S5	Tone Comp.-See Note 1
12B	.03	400	45-3500-1	S-6-03	TC-13	484-03	DT4S3	" "
13	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
14	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	" "
15	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	AVC Filter
16	.2	400	45-3506-3	S-4-2	TC-2	484-.2	DT4P2	Phono Isolation-See Note 2
17	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Phono Motor Isolation
18	.003	600	61-0109	S-6-003	TC-23	684-003	DT6D3	2nd IF Plate Decoup.
19	.05	400	38-9851-4	S-4-05	TC-15	484-05	DT4S5	Line Isolation-See Note 3
20	.15	400	38-9851-5			484-.15		" " " " 3
21	.05	400	61-0122	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
22	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Conv. Cathode Bypass
23	.1	400	61-0113	S-4-1	TC-1	484-.1	DT4P1	Tuning Cap. Isolation
24	220	500	60-10205307	MO.5-325	1FM-325	1468-00025	5W5T25	Output Grid Bypass
25	100	500	60-10106407	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
26	220	500	60-10205307	MO.5-325	1FM-325	1468-00025	5W5T25	IF Coupling
27	100	500	60-10106407	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
28	33	500	60-00033307					Fixed Trimmer
29	220	500	60-10205307	MO.5-325	1FM-325	1468-00025	5W5T25	Osc. Feedback
30	470	500	60-10515307	MO.5-35	1FM-35	1468-0005	5W5T5	RF Coupling
31	5		30-1221-5	MO.5-55	MS-55	1468-000005	5W5V5	Ant. Coupling-Cer.

Note 1 - Not used in early productions.
Note 2 - Not used in later productions.
Note 3 - Wind same number turns on replacement as on original.

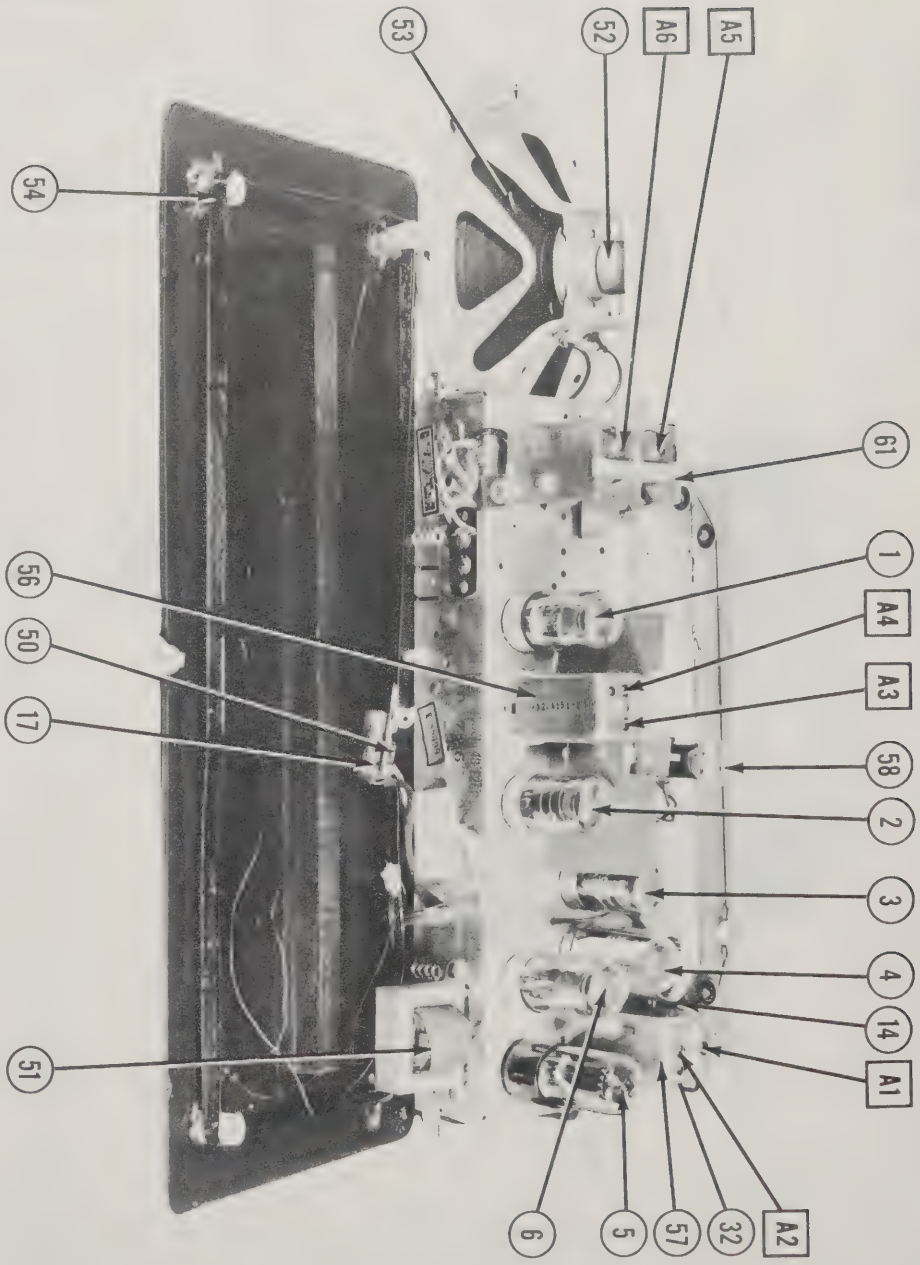
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESIST-ANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	
32A	500KΩ	½	33-5539-22	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 32A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
33	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Antenna Loading-See Note 1
34	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Oscillator Grid
35	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Converter Cathode
36	18KΩ	½	66-3183340	BTS-18K	Br.-Gray-Or. Oscillator Plate Load
37	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
38	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Screen Dropping
39	18KΩ	½	66-3183340	BTS-18K	Br.-Gray-Or. 1st IF Plate Load
40	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. 2nd IF Grid-See Note 2

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
41	8200Ω	½	66-2823340	BTS-8200	Gray-Red-Red 2nd IF Plate Decoupling
42	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
43	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
44	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
45	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
46	130Ω	½	66-1133340	BW-½-120	Br.-Gr.-Br. Output Cathode
47	500Ω		33-3405-8	AF-500	Filter
48	8200Ω	1	66-2824340	BTA-8200	Gray-Red-Red "
49	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Line Isolation-See Note 1
50	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Phono Shunt-See Note 3

Note 1 - Early production used 120KΩ in this application. IRC replacement BTS-120K.
Note 2 - Early production used 470KΩ in this application. Replacement same as #45.
Note 3 - Not used in early production.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
51	4800Ω	3.5Ω	450Ω	.7Ω	32-6242-3	A-3877†	T22946†	A-1302	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
52	FIELD PM	VC IMP. 3.5Ω	30-1026	ST-115 Mod. P8-V	6A21	
53	CONE DIA. 7-3/5"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
54	Loop Ant.		3.4Ω	32-4052-18		
55	Osc. Coil		2.5Ω	32-4019-6	14-1040	
56	Input IF	2.2Ω	10Ω	32-4151-1	16-6658	
57	Output IF	10Ω		32-3948-9	16-6670	

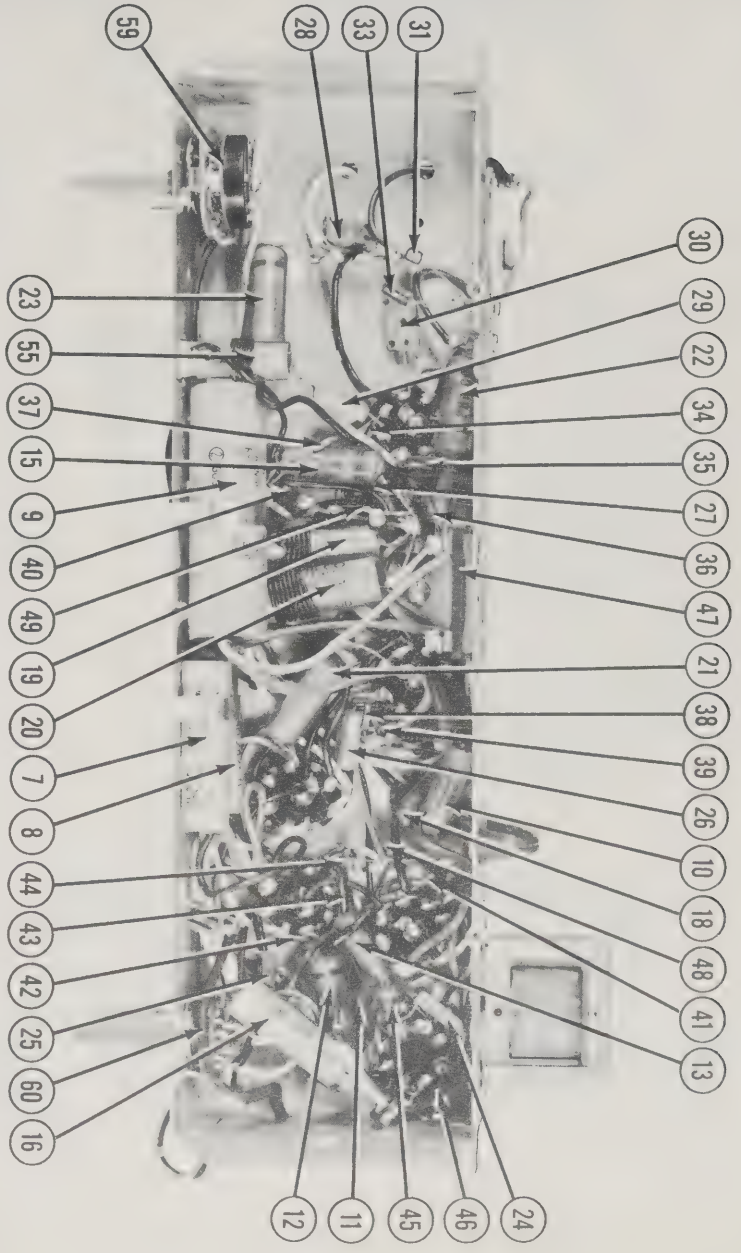
DIAL LIGHT

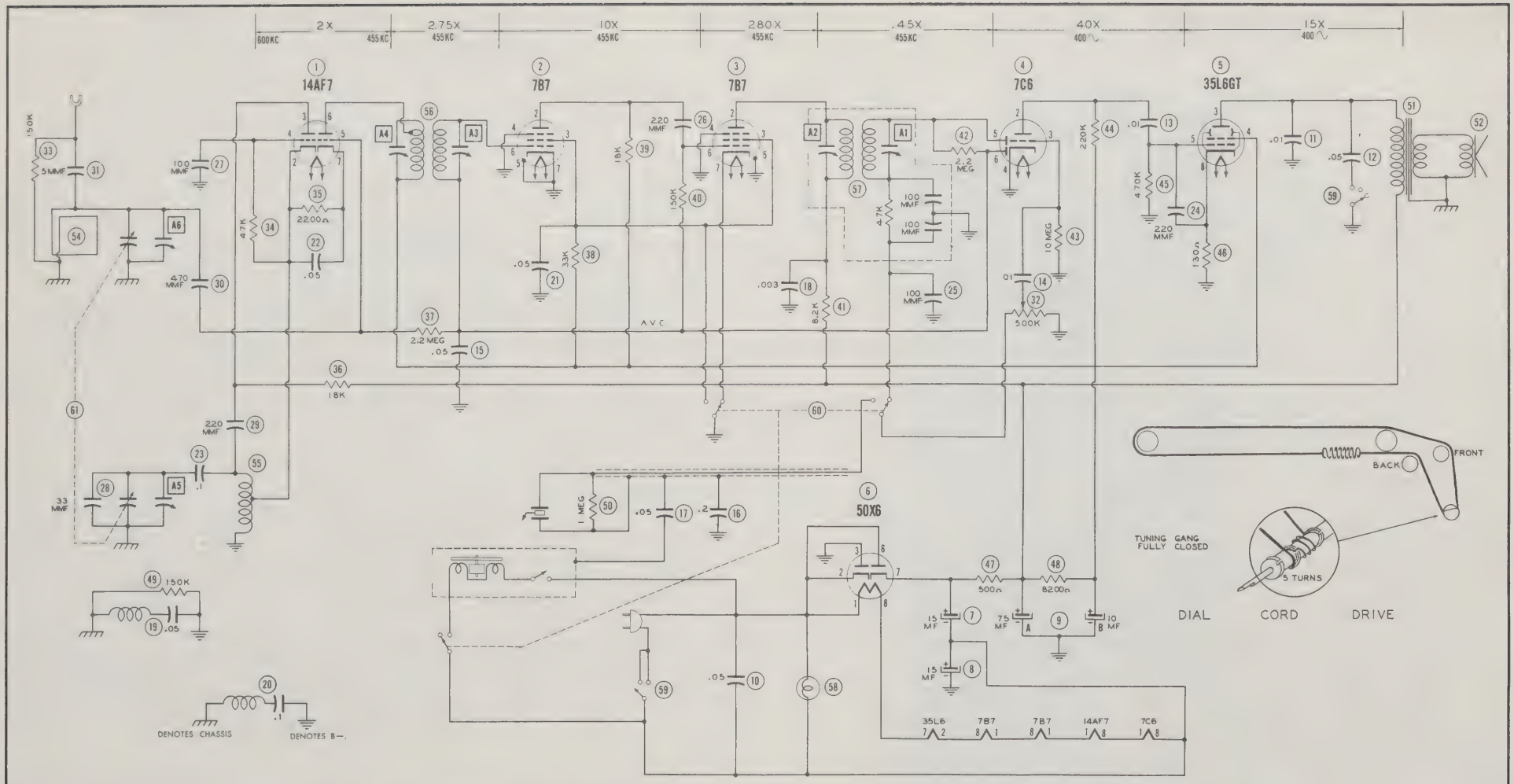
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
58	Screw	14			54-5477		Type C-7

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
59	Switch	42-1816-1	On-Off-Tone
60	"	42-1804-1	Radio-Phono
61	2 Gang Var. Cap.	33-5539-22	(25-537MMF, 22-255MMF)
	Dial Scale	27-1402	
	Dial Pointer	26-3043-3	
	Knob	54-4476	

CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1									
2									
3									
4									
5								75VAC*	6.6VDC
6	X-	117VAC*	117VAC*	0V.	0V.	167VDC	117VAC*	232VDC	75VAC*

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1									
2									
3			10MΩ	140KΩ	0Ω	0Ω	3 Meg.	0Ω	24Ω*
4			320KΩ	10 Meg.	0Ω	550KΩ	2.5 Meg.	0Ω	0Ω*
5	35L6	0Ω	30Ω*	100KΩ	100KΩ	470KΩ	0Ω	54Ω*	140Ω
6	50X6	82Ω*	82Ω*	0Ω	0Ω	100KΩ	82Ω*	100KΩ	54Ω*

RADIO-PHONO SWITCH IN RADIO POSITION
*READINGS TAKEN FROM PIN #8 OF 7C6.
§TAKEN WITH VACUUM TUBE VOLTMETER

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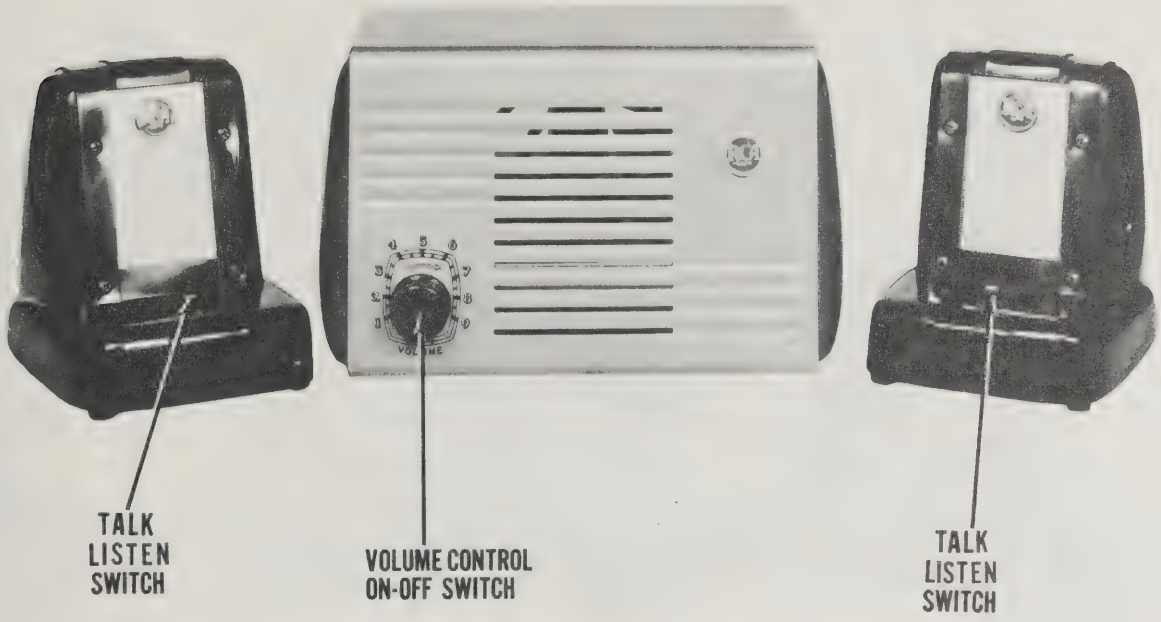
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

485-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

RCA (VICTOR)
MODEL MI-13167



RCA (VICTOR) MODEL MI-13167

TRADE NAME	RCA, (Victor) Model MI-13167
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N.J.
TYPE SET	AC-DC Operated Inter-communication System
TUBES (THREE)	Types, 12SL7GT AF Amp., 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .22 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT	0V.	45VDC	.6VDC	0V.	45KΩ	.6VDC	11VAC	0V.
2	50L6GT	0V.	55VAC	102VDC	102VDC	0V.	.6VDC	11VAC	6VDC
3	35Z5GT	112VDC	70VAC	74VAC	102VDC	117VAC	107VAC	100VAC	135VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT	24KΩ	300KΩ	1.6KΩ	270KΩ	320KΩ	1.6KΩ	13Ω	0Ω
2	50L6GT	0Ω	65Ω	50KΩ	50KΩ	0Ω	1.6KΩ	13Ω	125Ω
3	35Z5GT	50KΩ	122Ω	130Ω	50KΩ	300Ω	225Ω	165Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at minimum, no signal applied for voltage measurements, proper output load connected.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	AF Amp.	12SL7GT	12SL7GT	[illegible]D	
2	Power Output	50L6GT	50L6GT	7WC	
3	Rectifier	35Z5GT	35Z5GT	[illegible]L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
4A	20	150		DSB-20X20-150	TA-220	PRSA150-20-20	PRD6215	Filter
[illegible]	20	150						"
5	20	150		M-20-150	UT-201	PRS150-20	PRD6215	"
6	30	25		M-25-25	TA-25	PRS25-25	BR202A	Cathode Bypass
7	.01	400		S-4-01	TC-.1	484-01	DT4S1	Output Plate Bypass
8	.05	400		S-4-05	TC-15	484-05	DT4S5	Line Isolation
9	500			MC.5-S	1FM-51	1468-0005	5W5T5	Audio Coupling
10	500			MC.5-S	1FM-51	1468-0005	5W5T5	" "
11	500			MC.5-S	1FM-51	1468-0005	5W5T5	Tone Compensation
12	500			MC.5-S	1FM-51	1468-0005	5W5T5	" "

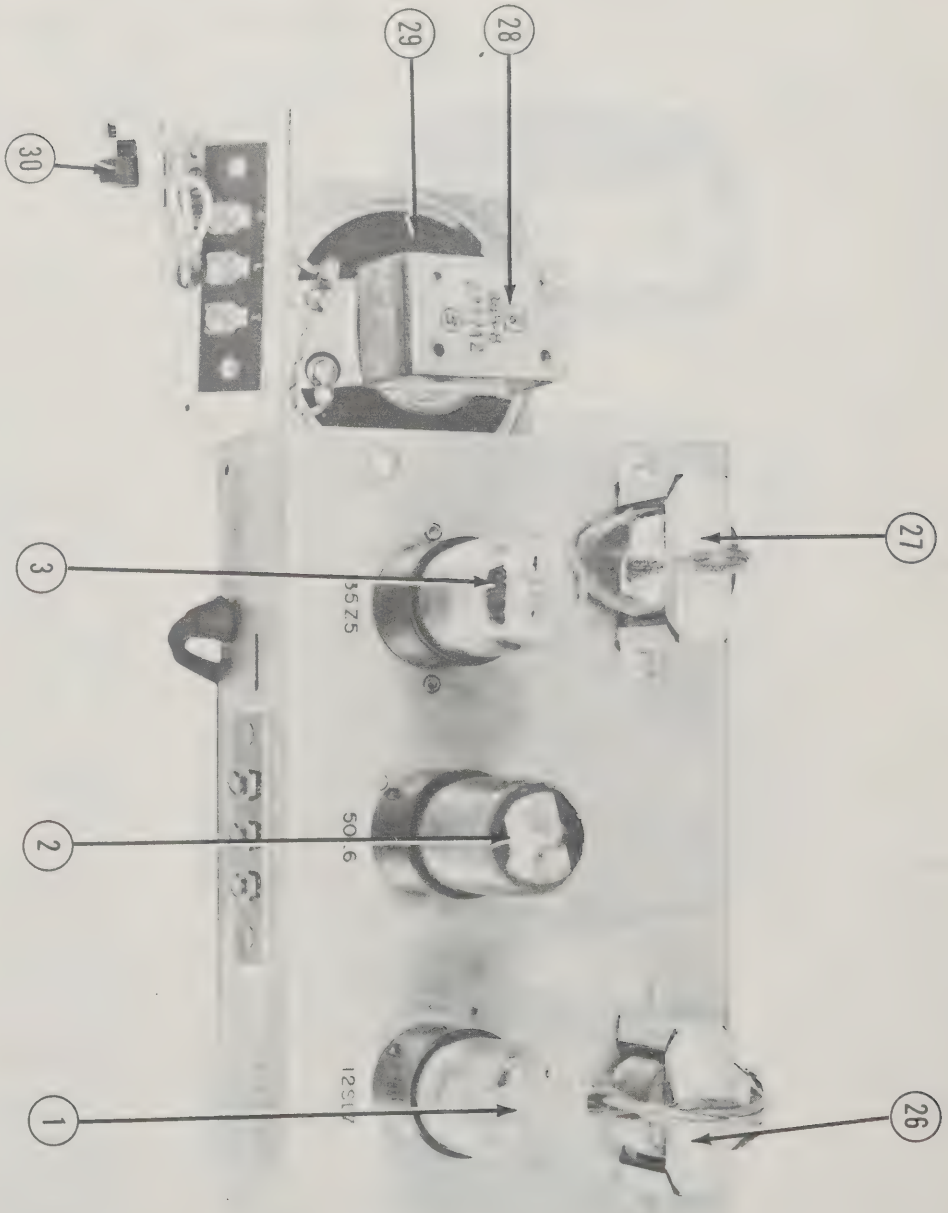
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	CLAROSTAT PART No.	
1	500K	2		D13-133	M-60-Z	Volume Control
2	Shaft			A	Not Req.	Attach to 13A per instructions
3	Switch			41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
14	5000Ω	1/2		BTS-4700	Grn.-Blk.-Red Input Transformer Shunt
15	22KΩ	1/2		BTS-22K	Red-Red-Or. 1st AF Grid
16	270KΩ	1/2		BTS-270K	Red-Grn.-Yl. 1st AF Plate Load
17	270KΩ	1/2		BTS-270K	Red-Vi.-Yl. 2nd AF Grid
18	270KΩ	1/2		BTS-270K	Red-Vi.-Yl. 2nd AF Plate Load
19	1500Ω	1/2		BTS-1500	Br.-Grn.-Red AF Cathode
20	120Ω	1/2		BW-1/2-120	Br.-Red-Br. Output Cathode
21	2200Ω	1		BTA-2200	Red-Red-Red Filter
22	470Ω	1		TA-470	Yl.-Vi.-Br. Filter
23	68Ω	1		BW-1-68	Grn.-Blue-Blk. Line Dropping
24	68Ω	1		BW-1-68	Grn.-Blue-Blk. " "
25	68Ω	1		BW-1-68	Grn.-Blue-Blk. " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (INPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	QUAM PART No.	
	PRI.	SEC.	PRI.	SEC.					
26	3.5Ω	3.0Ω	1.2Ω	.2Ω		A-3.77*	T2S48*	A-23*0*	*Reverse normal connections

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	QUAM PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	4.0Ω	3.9Ω	235Ω	.7Ω		A-3476	T22845	A-2-28	

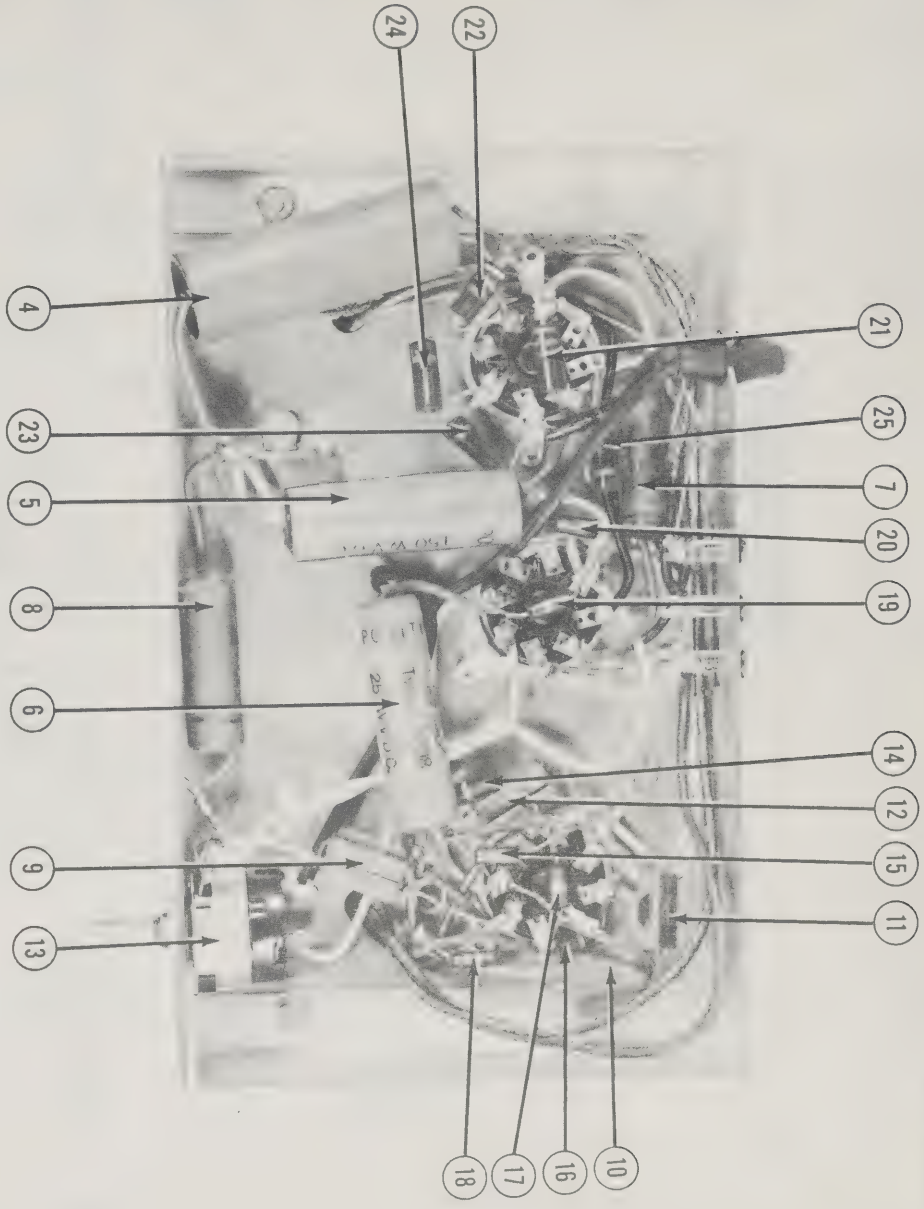
SPEAKER

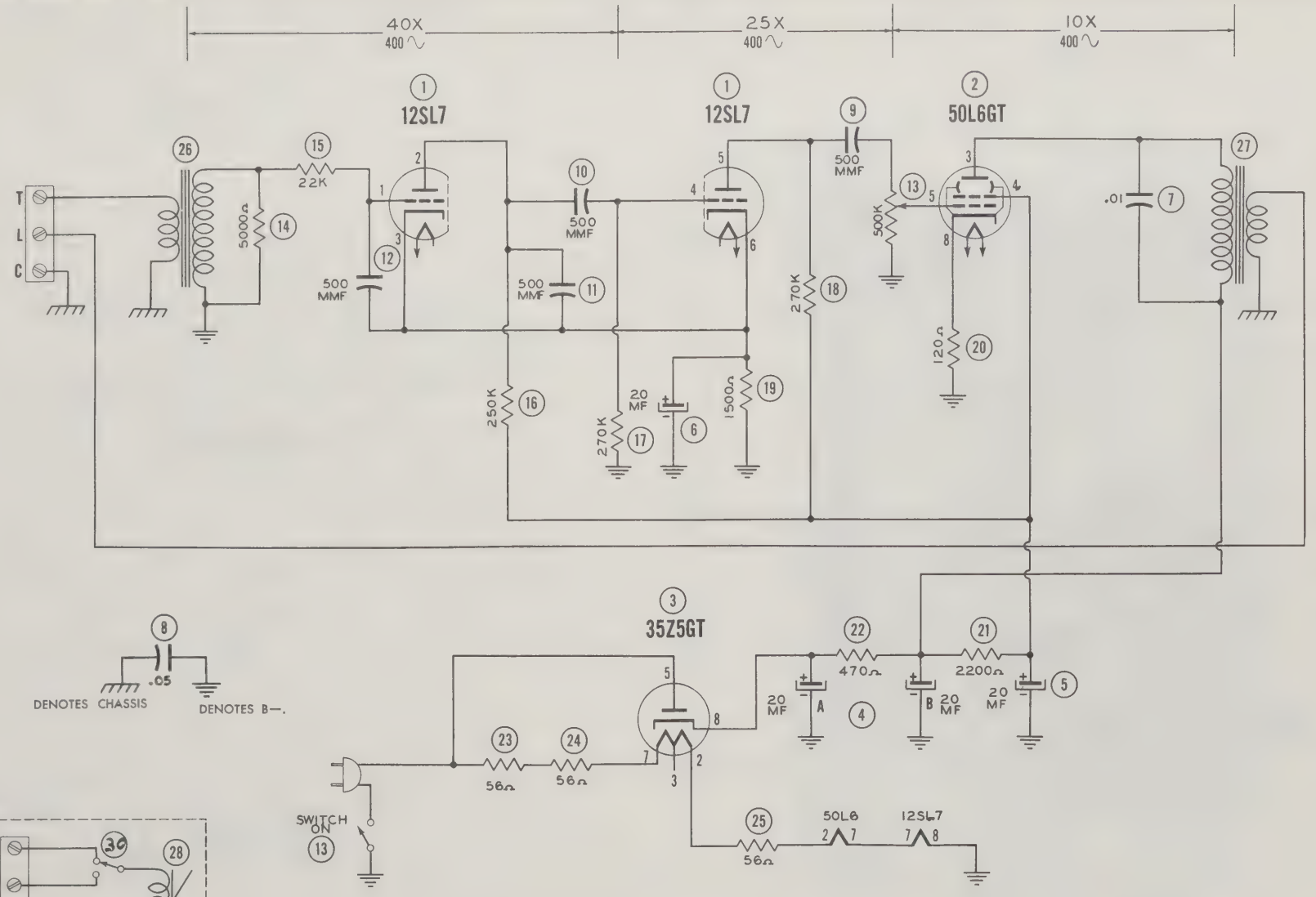
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			RCA PART No.	JENSEN PART No.	QUAM PART No.	
28	FIELD PM	VC IMP. 3.9Ω			3A07	
29	CONE DIA. 3-3/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
30	Switch		Talk-Listen

CHASSIS—BOTTOM VIEW





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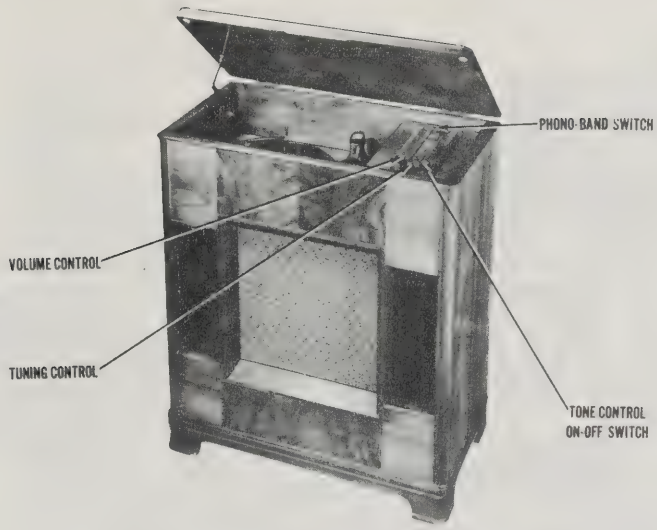
SILVERTONE MODELS 8105, 8105A (Ch. 101.833)



SILVERTONE MODEL 8105A

TRADE NAME	Silvertone, Models 8105, 8105A (Ch. 101.833)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio 2 Band Superheterodyne Receiver with Loop Ant.
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC — SHORT WAVE 6-16.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to middle stator of tuning cap. Low side to B-.	455KC	BC (center position)	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	200MMFD	High side to ext. ant. clip. Low side to chassis.	1650KC	"	Tuning cap. fully open.	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	"	Tune for maximum output.	"	A6,A7	" " " "
4	200MMFD	"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.
5	400Ω carbon res	"	16.5MC	SW (fully counter clockwise)	Tuning cap. fully open.	"	A9	Adjust for maximum output.
6	"	"	14MC	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 5 & 6 until no further improvement can be made.

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for at least 15 minutes.
2. Remove buttons by pulling up and loosen set screws under buttons.
3. Manually tune in station to be set up and depress completely any button shaft.
4. Holding shaft in tighten set screw firmly.
5. To check accuracy of setting detune station with manual control and retune with pushbutton. If setting is off repeat 2, 3 and 4.
6. To set up the remaining buttons follow the same procedure outlined above.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE MODELS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	7V	
2	Converter	14Q7	14Q7	7AL	
3	IF Amp.	7B7	7B7	7V	
4	Det.-AVC-AF	7C6	7C6	6W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	RC0416	DY-305	EL-340		UP4415C	■ Filter
B	40	150						▲ "
C	20	25						Cathode Bypass
8	.05	600		MPH-6-05	TC-15	684-05	DT6S5	Line Filter
9	.001	600		S-6-001	TC-21	684-001	DT6D1	" "
10	.02	600		S-6-02	TC-12	684-02	DT6S2	Output Plate Bypass
11	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
12	.1	200		S-2-1	TC-1	484-.1	DT2P1	AF Plate Decoupling
13	.001	600		S-6-001	TC-21	684-001	DT6D1	Tone Comp.
14	.1	200		S-2-1	TC-1	484-.1	DT2P1	Line Isolation
15	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
16	.05	200		S-4-05	TC-15	484-05	DT2S5	Phono Isolation
17	.02	200		S-4-02	TC-12	484-02	DT2S2	Tone Compensation
18	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
19	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
20	.01	600		S-6-01	TC-11	684-01	DT6S1	Tuning Cap. Isolation
21	.05	200		S-4-05	TC-15	484-05	DT2S5	RF Bypass Pwr. Supply
22	.001	600		S-6-001	TC-21	684-001	DT6D1	Ext. Ant. Coupling
23	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
24	4000	300		MW.5-24	1FM-24	1467-004	1D5D4	Fixed Padder
25	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
26	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

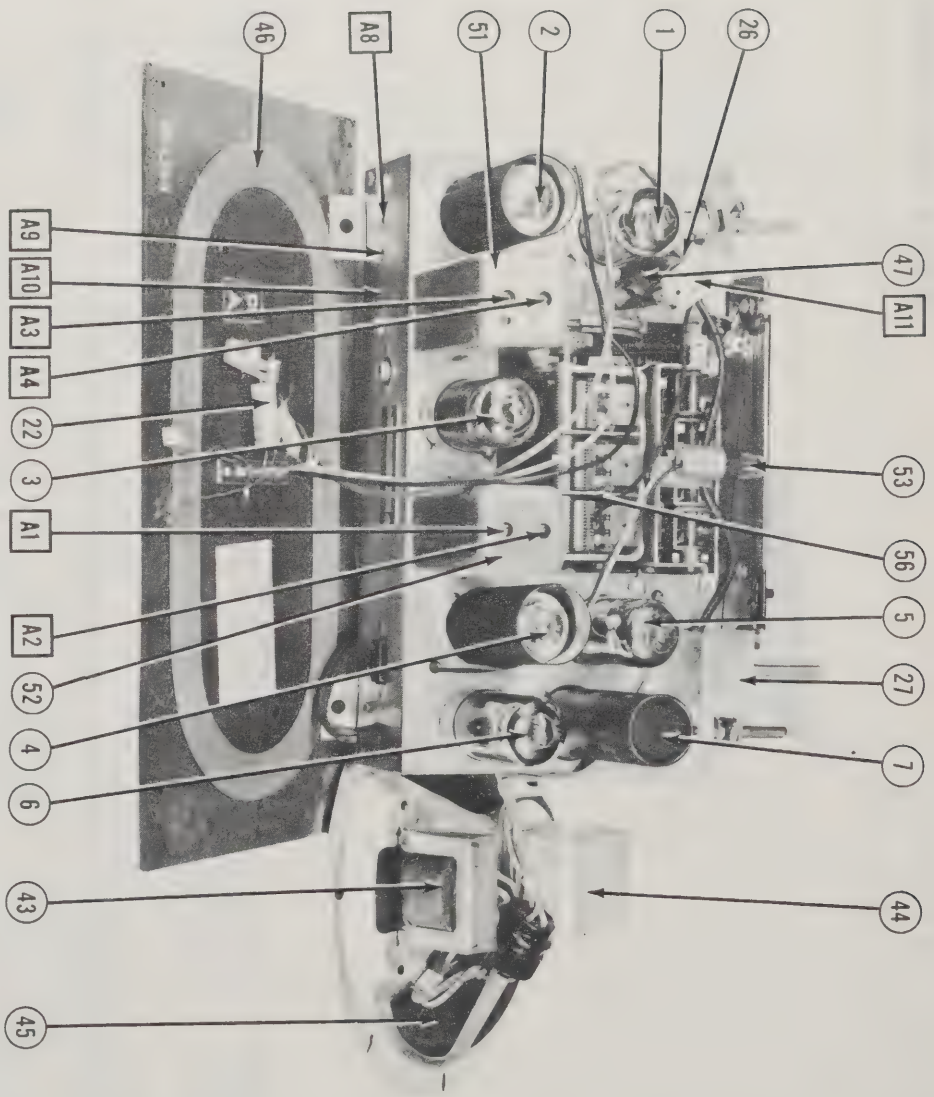
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
27A	2 Meg.	2	R62626	D13-139X	T-115	Volume Control tapped @ 500KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 27A per instructions
28A	2 Meg.	2	R62630	D13-139	M-66-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 28A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
30	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
31	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
32	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
33	680Ω	½		BTS-680	Blue-Gray-Br. Converter Cathode
34	68KΩ	½		BTS-68K	Blue-Gray-Or. Tone Compensation
35	330KΩ	½		BTS-330K	Or.-Or.-Yl. Phono Shunt
36	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
37	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
38	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
39	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
40	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
41	1200Ω	1		BTA-1200	Br.-Red-Red Filter
42	25Ω	1		5W-1-27	Red-Grn.-Blk. Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
43	2400Ω	3.5Ω	320Ω tapped @ 12Ω	.9Ω	R61038	A-3848*		A-2502*	*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-115		
44	PM	3.5Ω	R61032	Mod. P8-V	8A4	
	CONE DIA.	VC DIA.				
45	7-3/8"	7/8"	R61037			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
46	Loop Ant.	.2Ω	2.3Ω	R61235		
47	SW Ant.Coil	.5Ω	.1Ω	R61238	14-1044	
48A	BC RF Coil	6.5Ω	7.5Ω	R61236		
B	SW " "		.1Ω	R61236		
49	BC Osc."		3Ω	R61237		
50	SW " "		.1Ω	R62512	14-1046	
51	Input IF	10.5Ω	11Ω	R60417	16-6658	
52	Output IF	14Ω		R60418	16-6670†	†Add 220KΩ from low side sec. to B-.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
53	Bayonet	6-8	0.15	Brown			Type 47

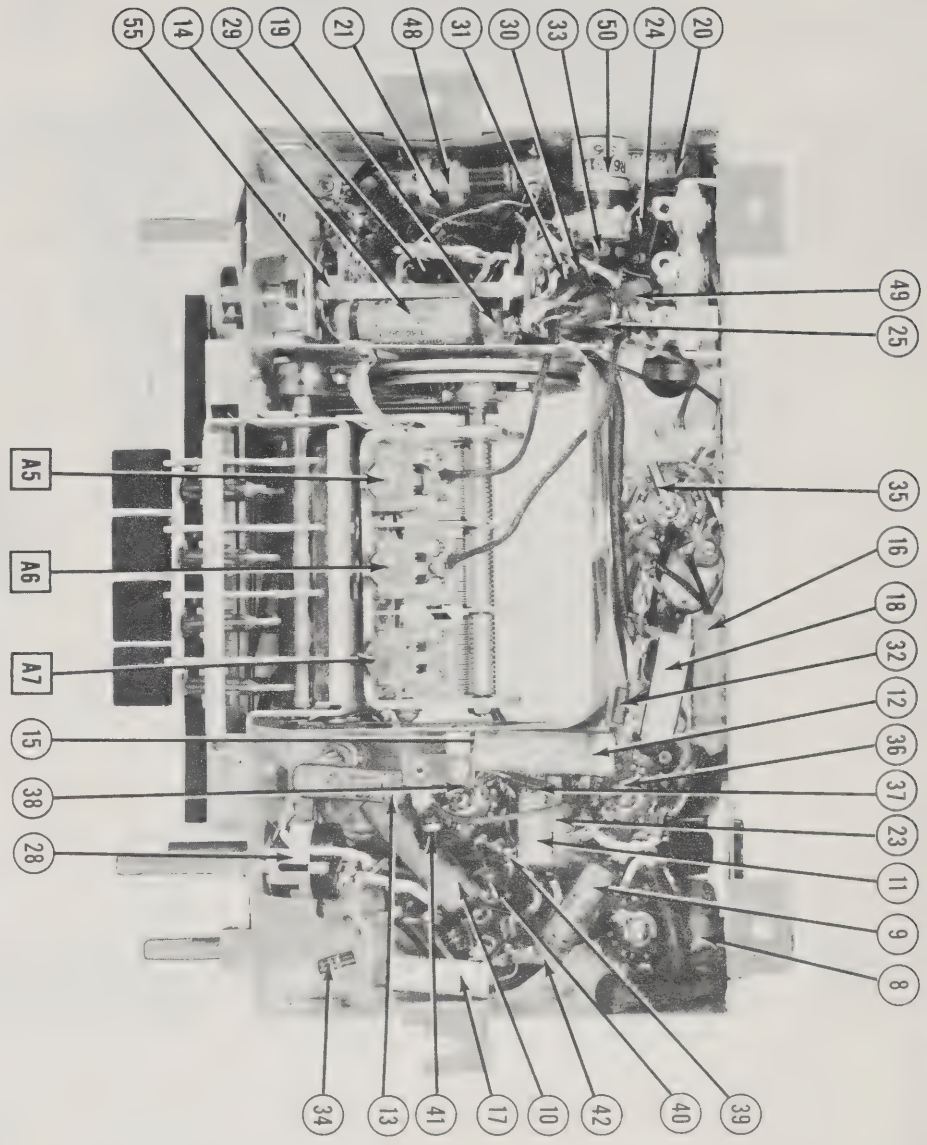
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	SILVERTONE PART No.	ASTATIC PART No.	
54		L-70-A	L-70 original part.

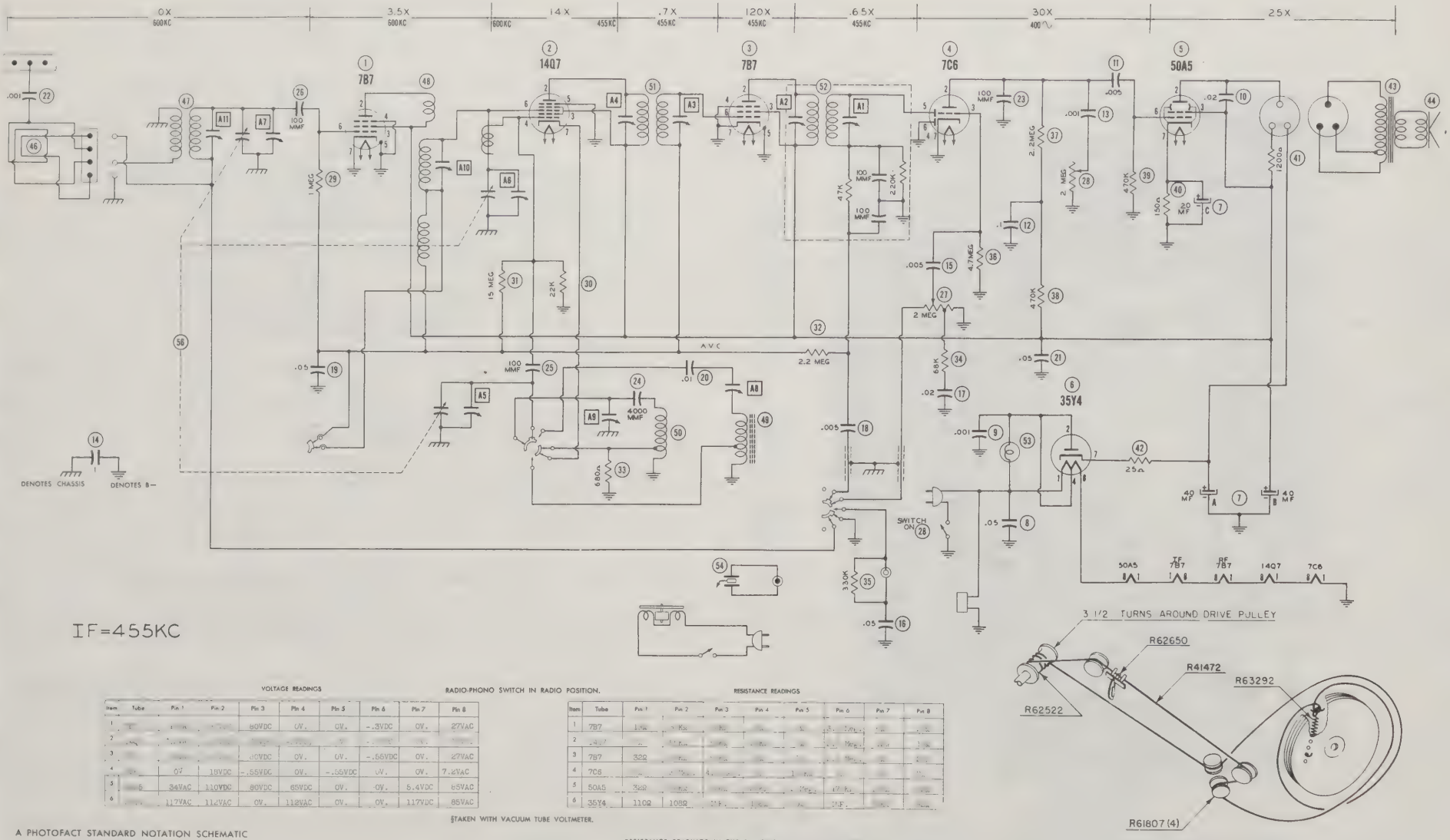
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
55	Switch	R62382	Phono-Band
56	3 Gang Var. Cap.	R61200	(20-485MMF) each section
A8	Trimmer Strip	R62651	BC Osc. Pad
A9			SW Osc. Adj.
A10			" RF "
	Dial	R62367	Lucite
	Dial Pointer	R62650	(Includes slider assby.)

CHASSIS—BOTTOM VIEW



SILVERTONE MODELS 5106, 5106A



VOLTAGE READINGS — RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7			80VDC	0V.	0V.	-.3VDC	0V.	27VAC
2	14Q7			80VDC	0V.	0V.	-.55VDC	0V.	27VAC
3	7B7	0V	18VDC	-.55VDC	0V.	-.55VDC	0V.	0V.	7.2VAC
4	7C6	36VAC	110VDC	80VDC	65VDC	0V.	0V.	5.4VDC	85VAC
5	50A5	117VAC	112VAC	0V.	112VAC	0V.	0V.	117VDC	85VAC
6	35Y4								

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	1Ω	K Ω						
2	14Q7		K Ω						
3	7B7	320							
4	7C6								
5	50A5	320							
6	35Y4	110Ω	108Ω						

‡TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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485-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SOUND INC. (PLUS SOUND) MODELS
MB6P3, MB6R4, MB6P6, MB6P30

TRADE NAME	Sound Inc.(Plus Sound),Models MB6P3 Pre-Amp., MB6R4 Tuner, MB6P6,MB6P30 Power Amp.
MANUFACTURER	Sound, Inc., 221 East Cullerton St., Chicago 16, Ill.
TYPE SET	AC Operated Tuner, 4 Channel Pre-Amp. and 2 Power Stages
TUBES (TWENTY)	Types, 6SA7 Converter, 6SQ7 Det.-AVC-AF, (2) 6SQ7 AF Amp., 6SL7GT AF Amp., 6J5GT Driver, (4) 6V6GT Power Output, (2) 7Z4 Rectifier, (6) 6V6GT Power Output, (2) 5Z4 Rectifier.
POWER SUPPLY	110-130 Volts AC RATING 1.1 Amp. @ 117 Volts AC with MB6P30, 1.5 Amp. @ 117 Volts AC with MB6P6
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	375KC	Tuning slugs out completely.	Across voice coil	A1,A2,	Adjust for maximum output. An extension cable must be used in order to gain access to A1.
2	200MMFD	High side to ext. ant. plug. Low side to chassis.	1500KC	1500KC	"	A3,A4.	Adjust for maximum output.
3	200MMFD	"	600KC	Tune for maximum output.	"	A5	Adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made.

SOUND INC. (PLUS SOUND) MODELS
MB6P3, MB6R4, MB6P6, MB6P30 PAGE 1

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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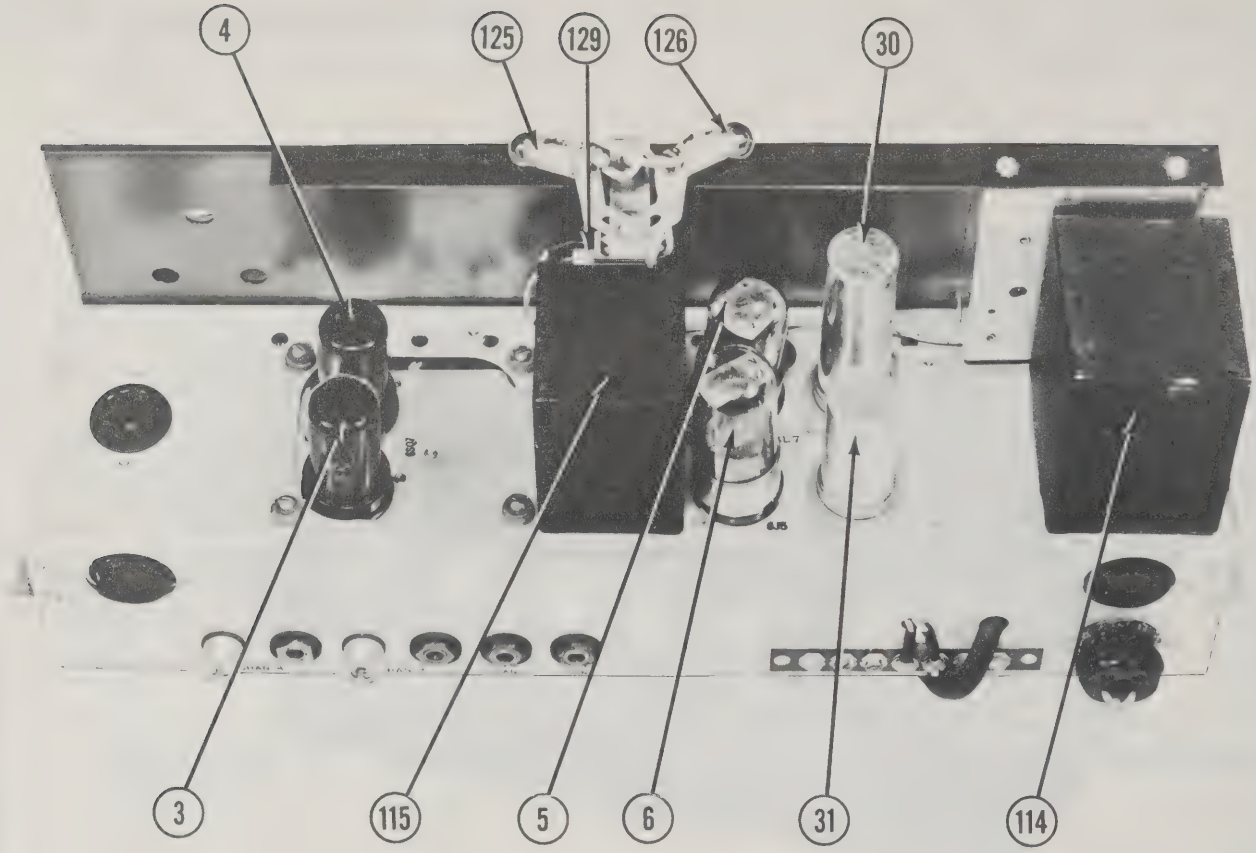
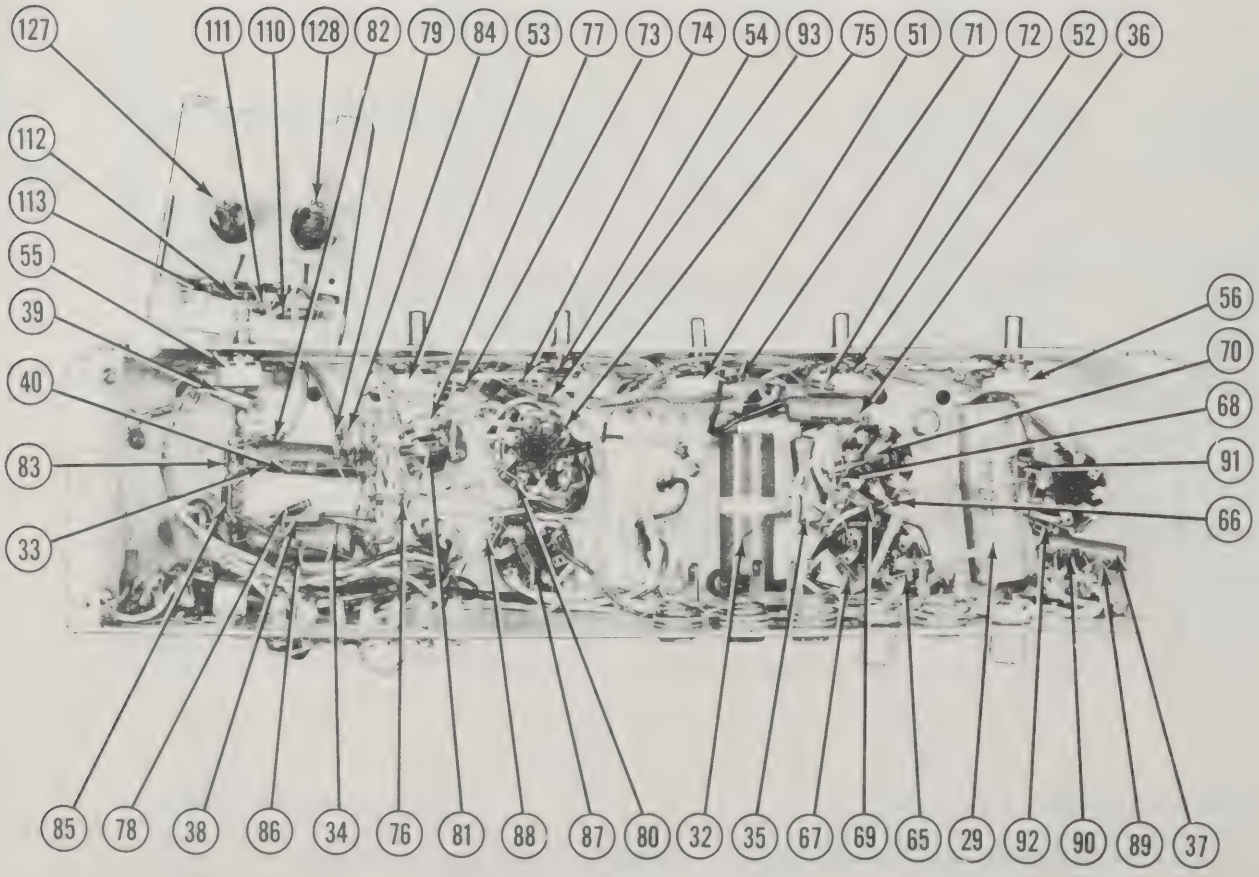
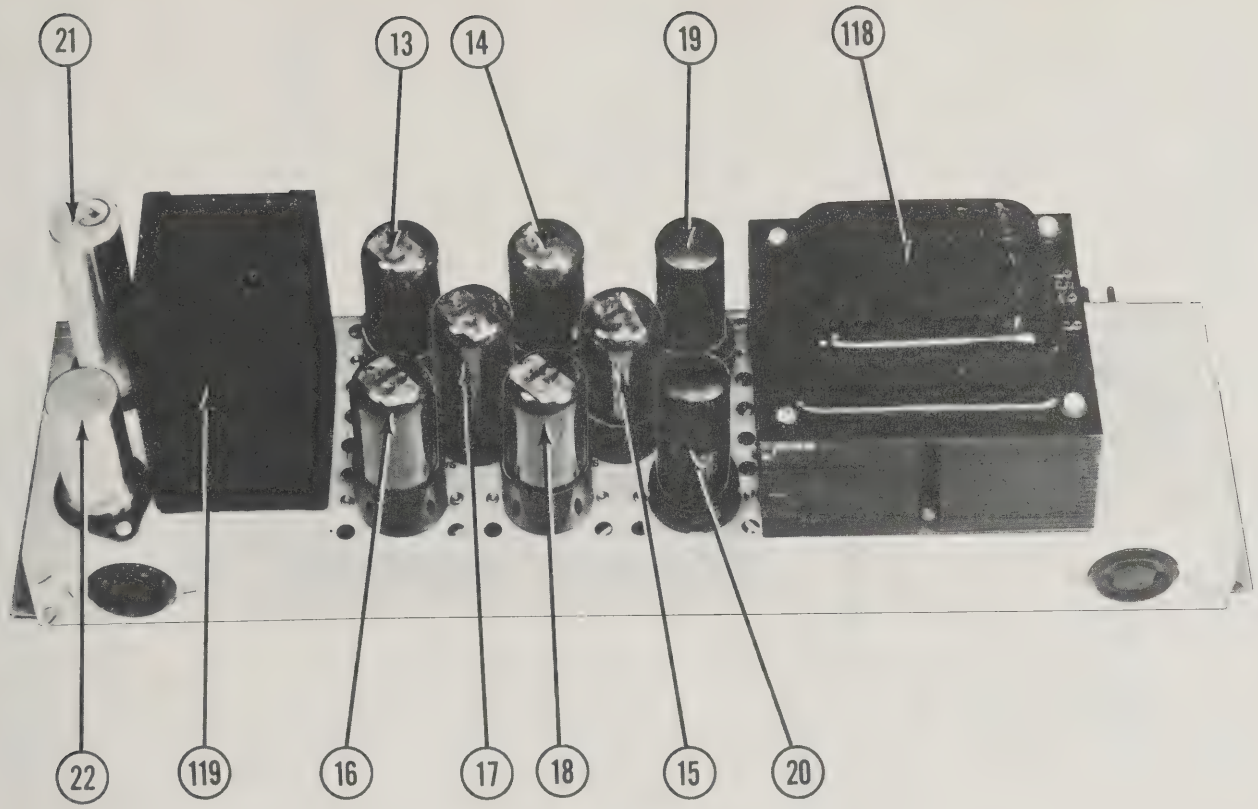


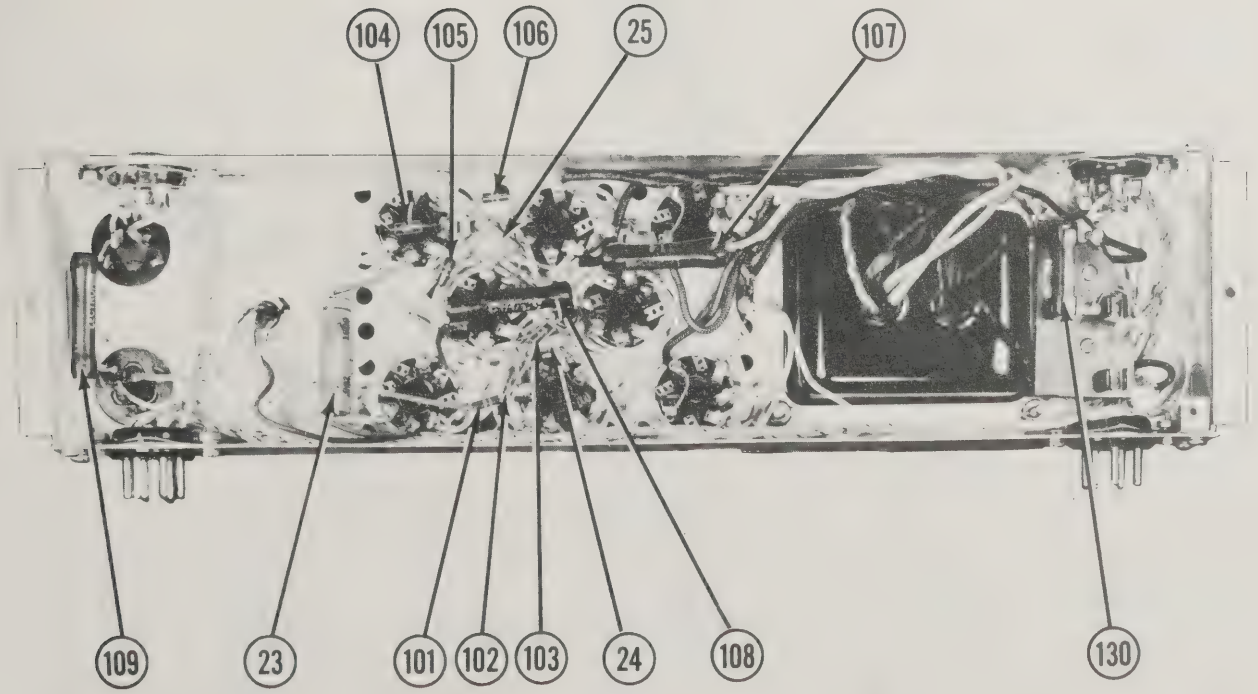
PRE AMP. MODEL MB6P3



PRE. AMP. MODEL MB6P3



POWER AMP. MODEL MB6P6



POWER AMP. MODEL MB6P6

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7	6SA7	8R	Used in tuner chassis (MB6R4)
2	Det.-AVC-AF	6SQ7	6SQ7	8Q	" " " " " "
3	AF Amp.	6SQ7	6SQ7	8Q	Used in pre-amp. chassis (MB6P3)
4	" "	6SQ7	6SQ7	8Q	" " " " " "
5	" "	6SL7GT	6SL7GT	8BD	" " " " " "
6	Driver	6J5GT	6J5GT	6Q	" " " " " "
7	Power Output	6V6GT	6V6GT	7AC	Used in Power Chassis (MB6P30)
8	" "	6V6GT	6V6GT	7AC	" " " " "
9	" "	6V6GT	6V6GT	7AC	" " " " "
10	" "	6V6GT	6V6GT	7AC	" " " " "
11	Rectifier	7Z4	7Z4	5AB	" " " " "
12	"	7Z4	7Z4	5AB	" " " " "
13	Power Output	6V6GT	6V6GT	7AC	Used in Power Chassis (MB6P6)
14	" "	6V6GT	6V6GT	7AC	" " " " "
15	" "	6V6GT	6V6GT	7AC	" " " " "
16	" "	6V6GT	6V6GT	7AC	" " " " "
17	" "	6V6GT	6V6GT	7AC	" " " " "
18	" "	6V6GT	6V6GT	7AC	" " " " "
19	Rectifier	5Z4	5Z4	5L	" " " " "
20	"	5Z4	5Z4	5L	" " " " "

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
21	40	450	275-4065-1	DY-40-450	EL-4	AF8J	UP4045	Filter
22A	10	450	285-3565-4	DY-10-450 /25-50	EL-202	AF22J4A	UP4045C	■ " ▲ Cathode Bypass
B	25	25						
23	.02	1600	263-2027-2	TM-16-002	TR-22	1684-002	MD16D2	Output Plate Bypass
24	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	Grid Bypass
25	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	" "
26	40	450	275-4065-1	DY-40-450	EL-4	AF8J	UP4045	Filter
27A	10	450	285-3565-4	DY-10-450/ 25-50	EL-202	AF22J4A	UP4045C	■ Filter ▲ Cathode Bypass
B	25	25						
28	.002	1600	263-2027-2	TM-16-002	TR-22	1684-002	MD16D2	Output Plate Bypass
29	16	450		M-16-450	UT-16	PRS450-16	BR1645	Filter
30A	10	450		DY-2x10-450	EL-210	AF22J	UP1145	"
B	10	450						"
31A	30	25		DY-3x20-25	EL-325	AF444D	UP22225	■ Cathode Bypass ▲ " "
B	20	25						
C	20	25						" "
32A	20	25	283-4062-1	DY-2x20-25	TA-220	PRSA150-20-20	UP2215	" " " "
B	20	25						
33	.05	400	263-5034-4	S-4- 05	TC-15	484-05	DT4S5	Audio Coupling
34	.1	400	263-1044-3	S-4-1	TC-1	484-.1	DT4P1	" "
35	.01	400	263-1034-5	S-4-01	TC-11	484-01	DT4S1	" "
36	.01	400	263-1034-5	S-4-01	TC-11	484-01	DT4S1	" "
37	.01	400	263-1034-5	S-4-01	TC-11	484-01	DT4S1	Output Shunt
38	175	500	232-1715-1	MO.5-315	1FM-315	1468-00015	5W5T15	Tone Comp.
39	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	" "
40	50	500	232-5005-1	MO.5-45	1FM-45	1468-00005	5W5Q5	" "
41	8	450		M-8-450	UT-8	PRS450-8	BR845	Filter
42	.05	400		S-4-05	TC-15	484-05	DT4S5	Audio Coupling
43	.01	400	263-1034-5	S-4-01	TC-11	484-01	DT4S1	" "
44	.01	400	263-1034-5	S-4-01	TC-11	484-01	DT4S1	AVC Filter
45	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
46	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	Fixed Trimmer
47	300	500	232-5015-3	MO.5-35	1FM-35	1468-00005	5W5T5	Fixed Trimmer
48	170	500	232-1034-5					" "
49	.05	500						Fixed Pad

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
50A	1 Meg.	½		MR53	D13-137	M-63-Z	Volume Control (Tuner section)
B	Shaft			Not Req.	A	Not Req.	Attach to 50A per instructions
C	Switch			M26	41	SW-A	" " " " "
51A	500KΩ	½	124-50413-1	MR48	D13-133	M-60-Z	Mike 1 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 51A per instructions
52A	500KΩ	½	124-50413-1	MR48	D13-133	M-60-Z	Mike 2 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 52A per instructions
53A	500KΩ	½	124-50413-1	MR48	D13-133	M-60-Z	Phono 1 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 53A per instructions
54A	500KΩ	½	124-50413-1	MR48	D13-133	M-60-Z	Phono 2 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 54A per instructions
55	4 Meg.	½	125-40513-1				Bass Control
56A	4 Meg.	½	125-40513-1	MR57	D13-140		Treble Control-See Note
B	Shaft		Not Req.		A		Attach to 56A per instructions

Note-Tone tap not used on this control.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SOUND INC. PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
57	560KΩ	½	111-56411	BTS-560K	Grn.-Blue-Yl. Converter Grid
58	22K	½		BTS-22K	Red-Red-Or. Oscillator Grid
59	10KΩ	½		BTS-10K	Br.-Blk.-Or. Converter Screen Load
60	47KΩ	1	111-47312	BTA-47K	Yl.-Vi.-Or. Converter Decoupling
61	3.3 Meg.	½	111-33511	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
62	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
63	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
64	15KΩ	½		BTS-15K	Br.-Grn.-Or. Output Shunt
65	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. 1st Mic. Amp. Grid-See Note 1
66	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. 2nd Mic. Amp. Grid-See Note 1
67	3300Ω	½	111-33411	BTS-3300	Or.-Or.-Red 1st Mic. Amp. Cathode
68	3300Ω	½	111-33411	BTS-3300	Or.-Or.-Red 2nd Mic. Amp. Cathode
69	270KΩ	½	111-27412	BTS-270K	Red-Vi.-Yl. 1st Mic. Amp. Plate Load
70	270KΩ	½	111-27412	BTS-270K	Red-Vi.-Yl. 2nd Mic. Amp. Plate Load
71	560KΩ	½	111-56411	BTS-560K	Grn.-Blue-Yl. Isolation
72	560KΩ	½	111-56411	BTS-560K	Grn.-Blue-Yl. "
73	560KΩ	½	111-56411	BTS-560K	Grn.-Blue-Yl. "
74	560KΩ	½	111-56411	BTS-560K	Grn.-Blue-Yl. "
75	2700Ω	½	111-27212	BTS-2700	Red-Vi.-Red 1st AF Cathode
76	150KΩ	½	111-15412	BTS-150K	Br.-Grn.-Yl. 1st AF Plate Load
77	27KΩ	½	111-27312	BTS-27K	Red-Vi.-Or. Decoupling
78	3.3 Meg.	½	111-33511	BTS-3.3 Meg.	Or.-Or.-Grn. Tone Compensation
79	220KΩ	½	111-22411	BTS-220K	Red-Red-Yl. 2nd AF Grid
80	2700Ω	½	111-27212	BTS-2700	Red-Vi.-Red 2nd AF Cathode
81	150KΩ	½	111-15412	BTS-150K	Br.-Grn.-Yl. 2nd AF Plate Load
82	1.8 Meg.	½	111-18511	BTS-1.8 Meg.	Br.-Gray-Grn. Tone Compensation
83	3.3 Meg.	½	111-33511	BTS-3.3 Meg.	Or.-Or.-Grn. " "
84	3.3 Meg.	½	111-33511	BTS-3.3 Meg.	Or.-Or.-Grn. " "
85	1.8 Meg.	½	111-18511	BTS-1.8 Meg.	Br.-Gray-Grn. " "
86	820KΩ	½		BTS-820K	Gray-Red-Yl. " " - See Note 1
87	1 Meg.	½	111-10512	BTS-1 Meg.	Br.-Blk.-Grn. Driver Grid
88	2700Ω	½		BTS-2700	Red-Vi.-Red Driver Cathode
89	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Output Shunt
90	50KΩ	½		BTS-47K	Grn.-Blk.-Or. " "
91	10KΩ	1	111-10331	BTA-10K	Br.-Blk.-Or. Decoupling
92	10KΩ	1	111-10331	BTA-10K	Br.-Blk.-Or. "
93	1 Meg.	½	111-10512	BTS-1 Meg.	Br.-Blk.-Grn. Isolation-See Note 2
94	680Ω	1		BTA-680	Blue-Gray-Br. Parasitic Suppressor
95	680Ω	1		BTA-680	Blue-Gray-Br. " "
96	680Ω	1		BTA-680	Blue-Gray-Br. " "
97	680Ω	1		BTA-680	Blue-Gray-Br. " "
98	171Ω	5	151-17155	ABA-200	Output Cathode-See Note 3
99	50KΩ	2	111-47341	BT-2-47K	Grn.-Blk.-Or. Bleeder-See Note 4
100	7500Ω	10	151-75265	AB-7500	Filter
101	1200Ω	½		BTS-1200	Br.-Red-Red Parasitic Suppressor
102	1200Ω	½		BTS-1200	Br.-Red-Red " "
103	1200Ω	½		BTS-1200	Br.-Red-Red " "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SOUND INC. PART No.	IRC PART No.	
104	1200Ω	½		BTS-1200	Br.-Red-Red " "
105	1200Ω	½		BTS-1200	Br.-Red-Red " "
106	1200Ω	½		BTS-1200	Br.-Red-Red " "
107	114Ω	10	151-11165	ABA-150	Output Cathode-See Note 5
108	33KΩ	10	151-33355	DJ-30K	Bleeder
109	5KΩ	10	151-50265	AB-5K	Filter
110	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Indicator Network
111	33KΩ	½		BTS-33K	Or.-Or.-Or. Indicator Network
112	220KΩ	½		BTS-220K	Red-Red-Yl. Indicator Network
113	1 Meg.	½	111-10512	BTS-1 Meg.	Br.-Blk.-Grn. Indicator Network

Note 1 - Some models use 1 Meg. in this application. IRC replacement BTS-1 Meg.
Note 2 - Some models use 560KΩ in this application. IRC replacement BTS-560K.
Note 3 - On IRC replacement set slider at 171Ω from one end.
Note 4 - Some models use three 150KΩ 1 watt resistors in parallel. Replacement same as above.
Note 5 - On IRC replacement set slider at 114Ω from one end.

TRANSFORMER (MATCHING)

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	SOUND INC. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
114	4Ω 5.3Ω 8Ω 16Ω 250Ω 600Ω	.6Ω .65Ω .7Ω 1.2Ω 10Ω 17Ω	334-2				

TRANSFORMER (DRIVER)

ITEM No.	RATING			REPLACEMENT DATA				INSTALLATION NOTES
	TURNS RATIO	DC RES.		SOUND INC. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI. to SEC.	PRI.	SEC.					
115	1 to 1.2	1800Ω	800Ω CT	334-1		T20A17*		*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SOUND INC. PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
116A	117V AC @ 1.1A	800V CT @ .15A	6.3V AC @ 1.8A	6.4V CT @ 4.0A	352-10§			
B					352-8‡			
117	117V AC @ 1.5A	760V CT @ .19A	5.0V AC @ 4.0A	6.3V CT @ 4.6A	352-3†	P-6314	T22R07	P-2955

§Used in Model MB6P30
‡Alternate [illegible] for Model [illegible]
†Used in Model MB6P6

DATE 2-18-#485-21

SCR #2E-FOLDER #21

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SOUND INC. PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
118	3100Ω CT	8Ω 16Ω	120Ω CT	.4Ω .8Ω	334-4				Used in Model MB6P30
119	2500Ω CT	8Ω 16Ω	110Ω CT	.4Ω .8Ω	334-5				Used in Model MB6P6

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

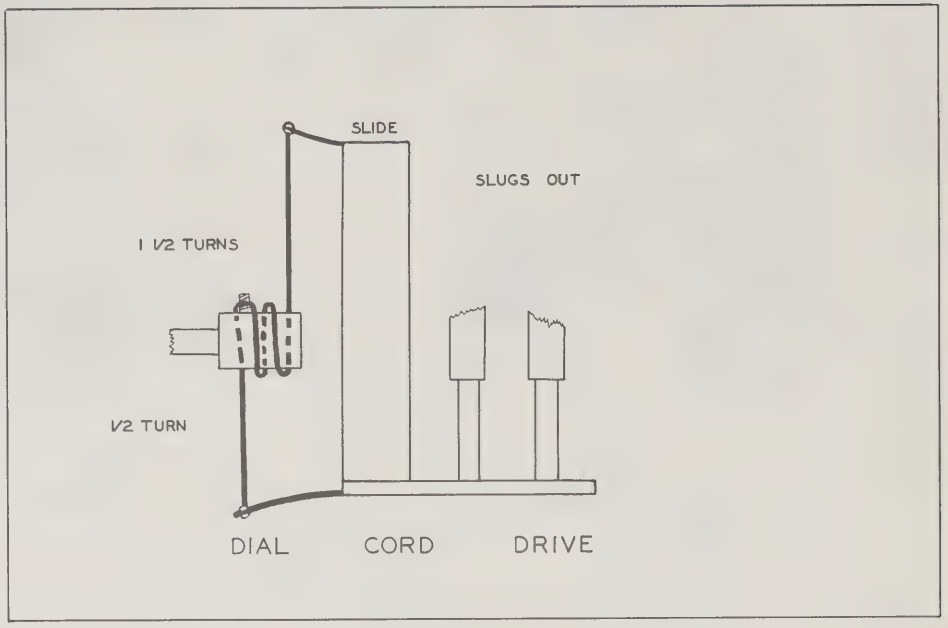
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SOUND INC. PART No.	MEISSNER PART No.	
120	Ant. Coil (Fixed)		7Ω			
121	Ant. Coil (Tuned)		1Ω			
122	Osc. Coil		1Ω			
123	Osc. Series Coil		1Ω			
124	Input IF	20Ω	20Ω			

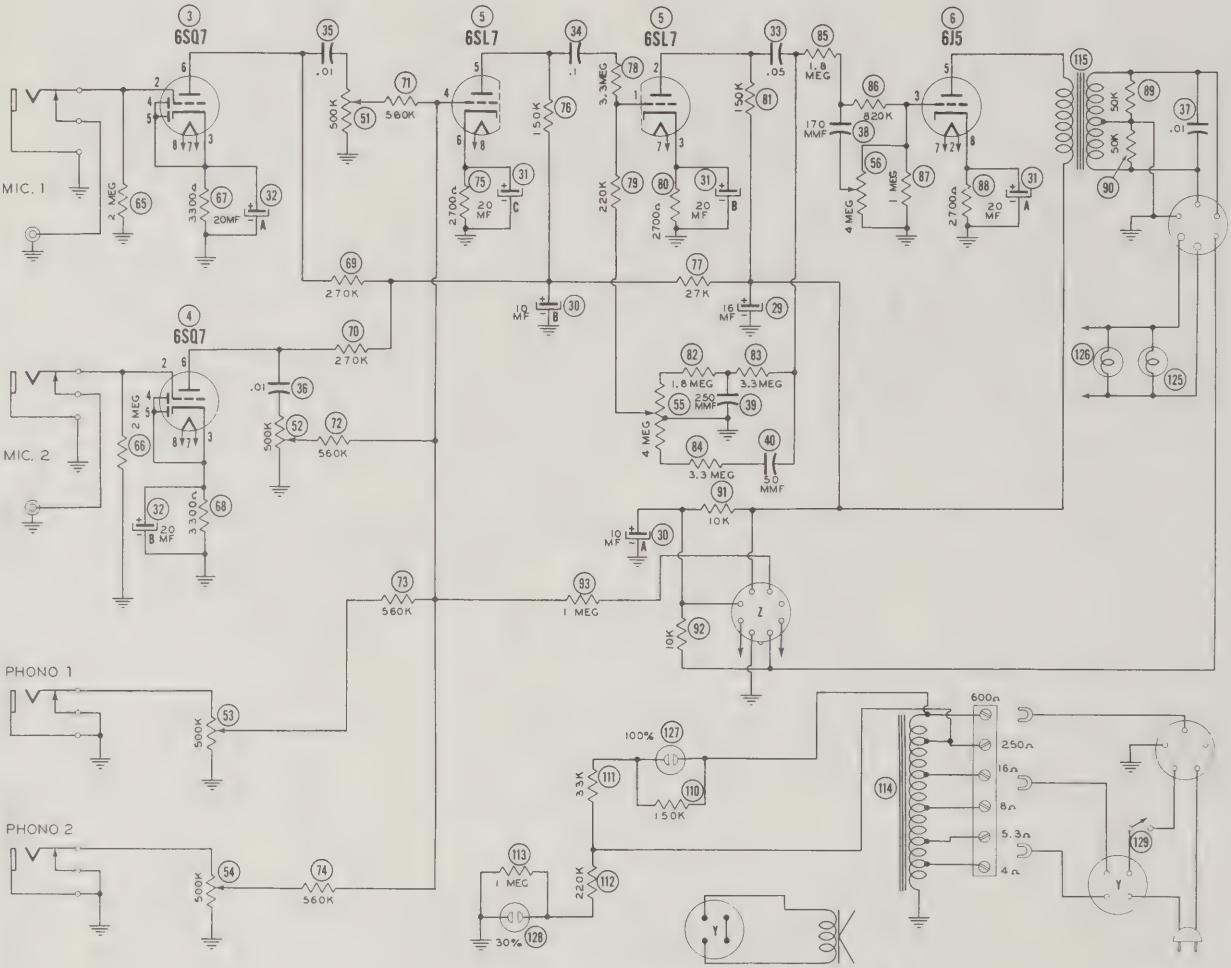
DIAL LIGHT

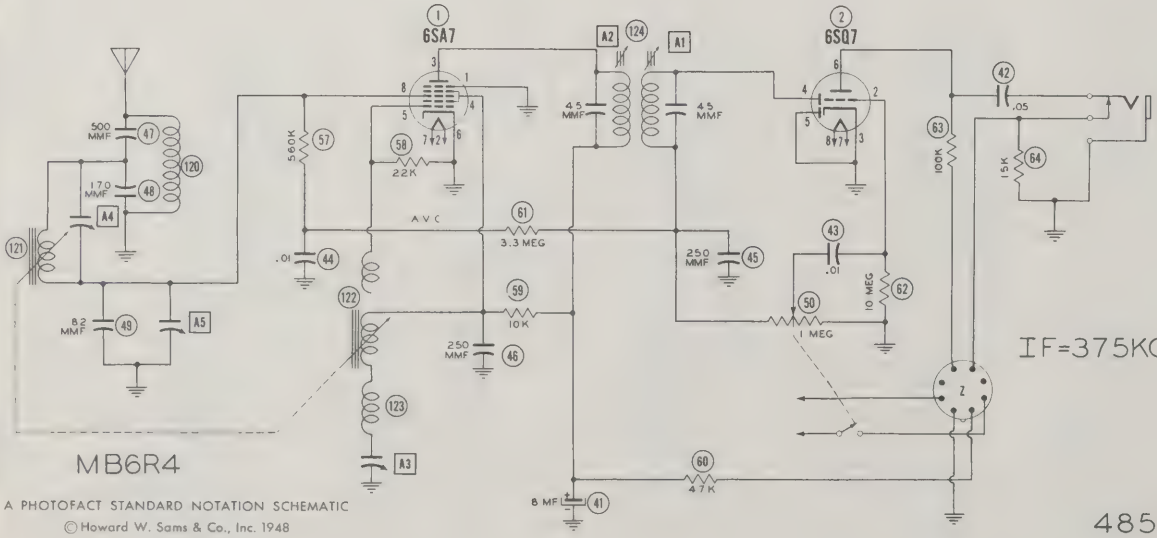
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SOUND INC. PART No.		
125	Bayonet	7.5	0.2	White	422-51		Type 51
126	"	7.5	0.2	"	422-51		" "

MISCELLANEOUS

ITEM No.	PART NAME	SOUND INC. PART No.	NOTES
127	Indicator		Neon
128	"		"
129	Switch		On-Off
130	Fuse		3 Amp.
131	"	541-1	2 Amp.







A PHOTOFACT STANDARD NOTATION SCHEMATIC

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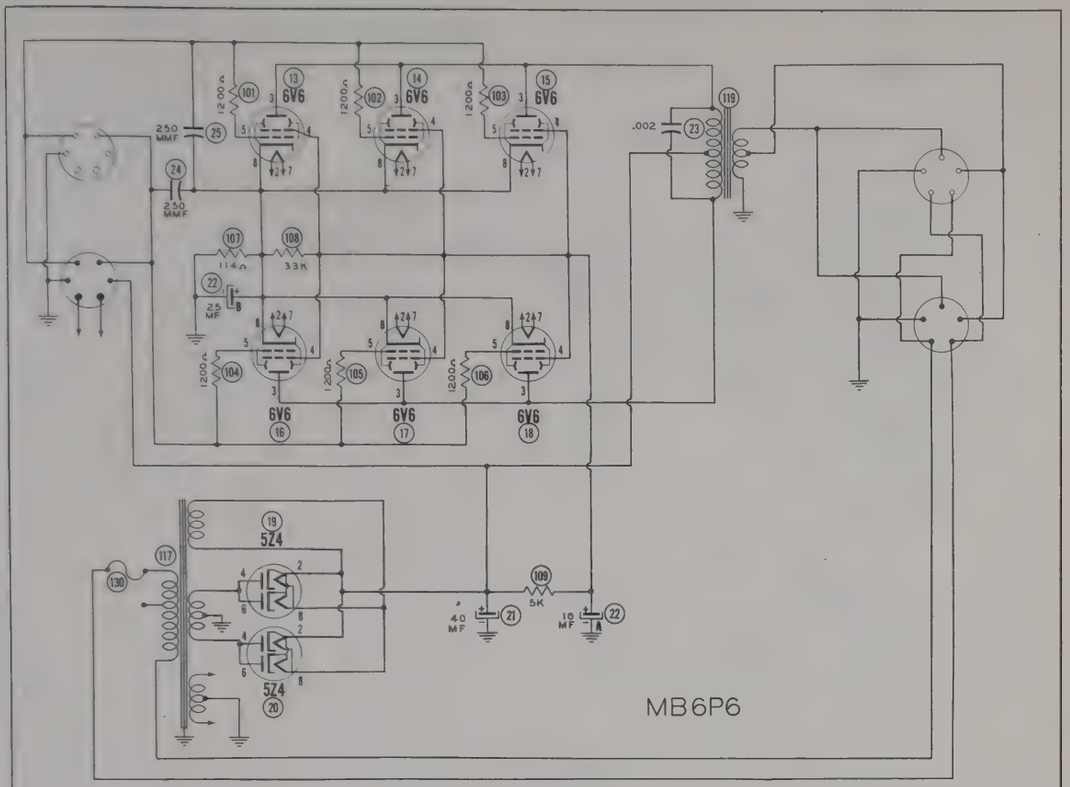

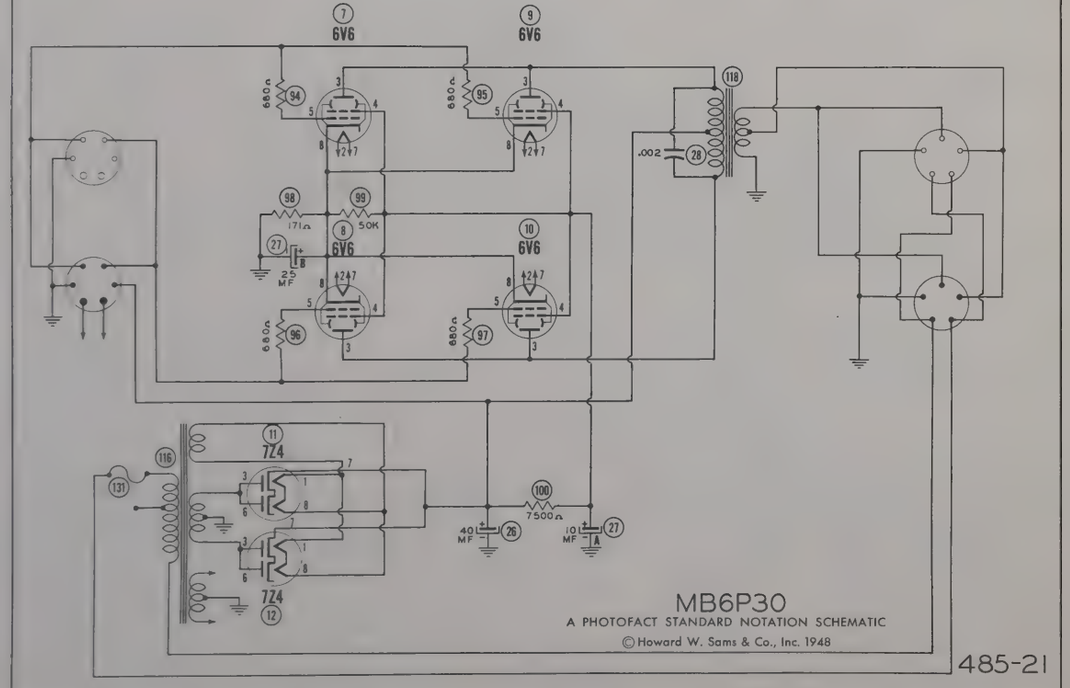

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VOLTAGE AND RESISTANCE READINGS TAKEN ON TUBES 1 THROUGH 12 USING MB6P30.
VOLTAGE AND RESISTANCE READINGS TAKEN ON TUBES 13 THROUGH 30 USING MB6P6.

VOLTAGE READINGS

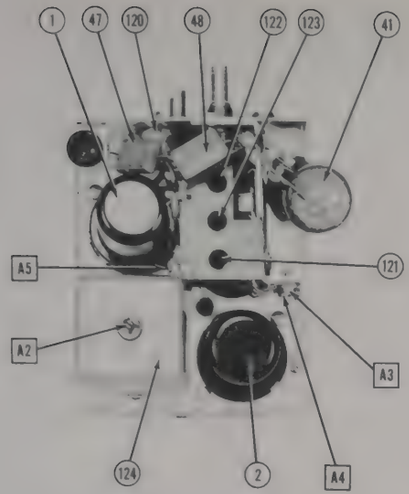
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	3.2VAC	95VDC	50VDC	-4.5VDC$	0V.	3.2VAC	-.5VDC
2	6SQ7	0V.	-.6VDC	0V.	-.5VDC	0V.	150VDC	3.2VAC	3.2VAC
3	6SQ7	0V.	0V.	1.4VDC	0V.	0V.	125VDC	3.2VAC	3.2VAC
4	6SQ7	0V.	0V.	1.2VDC	0V.	0V.	120VDC	3.2VAC	3.2VAC
5	6SL7GT	0V.	155VDC	2.2VDC	0V.	130VDC	1.7VDC	3.2VAC	3.2VAC
6	6J5GT	0V.	3.2VAC	260VDC	0V.	0V.	0V.	3.2VAC	11VDC
7	6V6GT	0V.	3.2VAC	410VDC	320VDC	0V.	0V.	3.2VAC	24VDC
8	6V6GT	0V.	3.2VAC	410VDC	320VDC	0V.	320VDC	3.2VAC	24VDC
9	6V6GT	0V.	3.2VAC	410VDC	320VDC	0V.	0V.	3.2VAC	24VDC
10	6V6GT	0V.	3.2VAC	410VDC	320VDC	0V.	0V.	3.2VAC	24VDC
11	7Z4	0V.	0V.	380VAC	0V.	0V.	380VAC	420VDC	0V.
12	7Z4	0V.	0V.	380VAC	0V.	0V.	380VAC	420VDC	0V.
13	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
14	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
15	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
16	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
17	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
18	6V6GT	0V.	3.2VAC	420VDC	340VDC	0V.	0V.	3.2VAC	26VDC
19	5Z4	0V.	425VDC	0V.	400VAC	0V.	400VAC	0V.	425VDC
20	5Z4	0V.	425VDC	0V.	400VAC	0V.	400VAC	0V.	425VDC

RESISTANCE READINGS

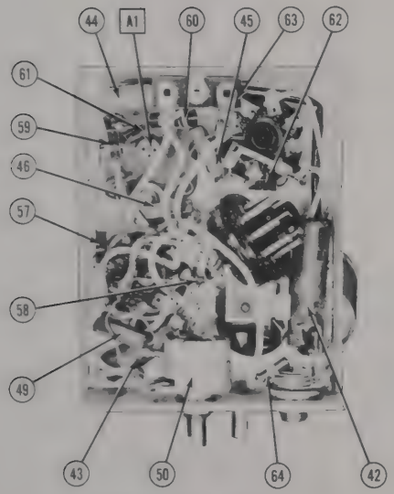
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0Ω	.1Ω	90KΩ	100KΩ	22KΩ	0Ω	.1Ω	5 Meg.
2	6SQ7	0Ω	10 Meg.	0Ω	1 Meg.	0Ω	160KΩ	.1Ω	.1Ω
3	6SQ7	0Ω	1 Meg.	3.3KΩ	0Ω	0Ω	360KΩ	.1Ω	.1Ω
4	6SQ7	0Ω	1 Meg.	3.3KΩ	0Ω	0Ω	360KΩ	.1Ω	.1Ω
5	6SL7GT	1.7 Meg.	240KΩ	2.7KΩ	190KΩ	240KΩ	2.7KΩ	.1Ω	.1Ω
6	6J5GT	0Ω	.1Ω	60KΩ	INF.	750KΩ	INF.	.1Ω	2.7KΩ
7	6V6GT	410Ω	.1Ω	40KΩ	38KΩ	1.3KΩ	INF.	.1Ω	170Ω
8	6V6GT	INF.	.1Ω	40KΩ	38KΩ	1.3KΩ	38KΩ	.1Ω	170Ω
9	6V6GT	390Ω	.1Ω	40KΩ	38KΩ	1.3KΩ	INF.	.1Ω	170Ω
10	6V6GT	INF.	.1Ω	40KΩ	38KΩ	1.3KΩ	INF.	.1Ω	170Ω
11	7Z4	INF.	INF.	90Ω	INF.	INF.	90Ω	40KΩ	INF.
12	7Z4	INF.	INF.	95Ω	INF.	0Ω	95Ω	40KΩ	INF.
13	6V6GT	INF.	.1Ω	33KΩ	30KΩ	1.7KΩ	INF.	.1Ω	120Ω
14	6V6GT	INF.	.1Ω	33KΩ	30KΩ	1.7KΩ	400Ω	.1Ω	120Ω
15	6V6GT	INF.	.1Ω	33KΩ	30KΩ	1.7KΩ	INF.	.1Ω	120Ω
16	6V6GT	400Ω	.1Ω	33KΩ	30KΩ	1.7KΩ	INF.	.1Ω	120Ω
17	6V6GT	INF.	.1Ω	33KΩ	30KΩ	1.7KΩ	INF.	.1Ω	120Ω
18	6V6GT	INF.	.1Ω	33KΩ	30KΩ	1.7KΩ	INF.	.1Ω	120Ω
19	5Z4	0Ω	33KΩ	INF.	28Ω	INF.	28Ω	INF.	33KΩ
20	5Z4	0Ω	33KΩ	INF.	30Ω	INF.	30Ω	INF.	33KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, no signal applied for voltage measurements.



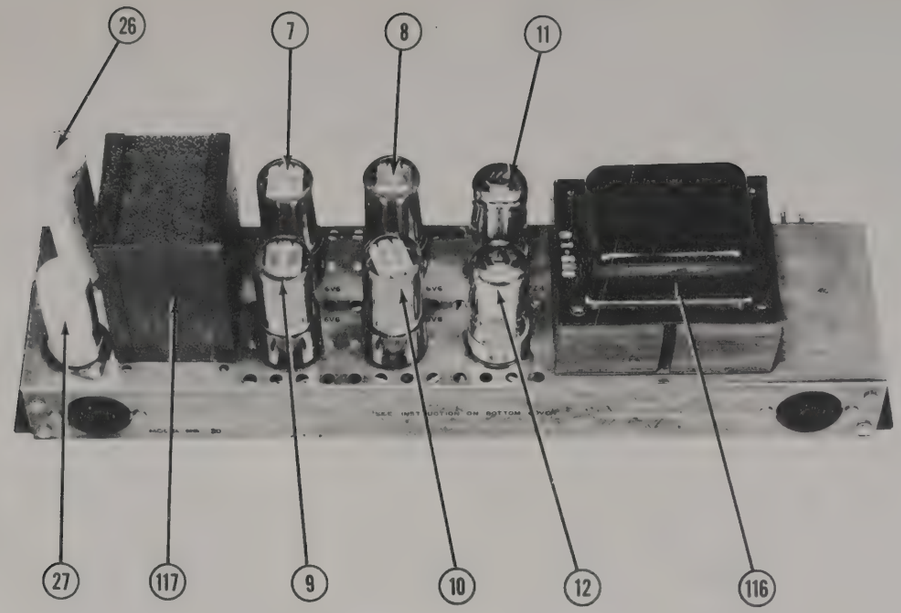
TUNER MODEL MB6R4



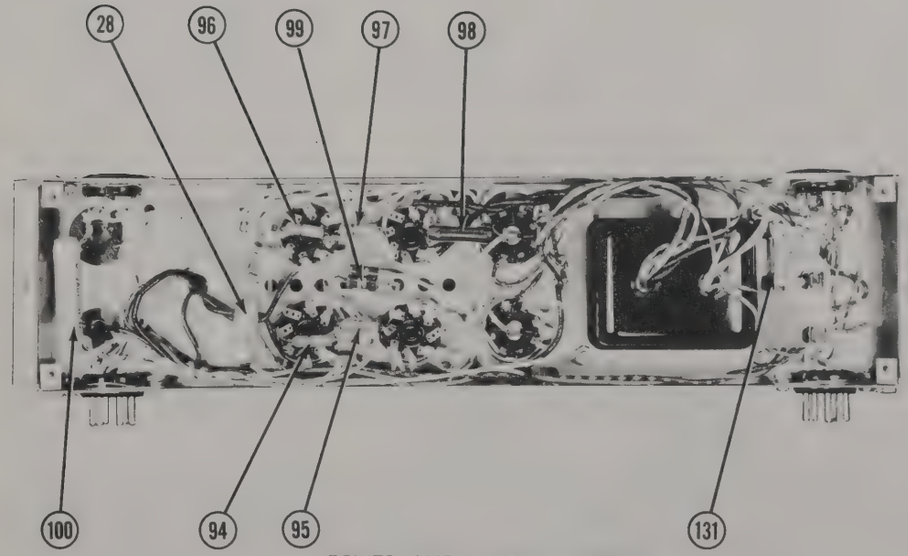
TUNER MODEL MB6R4

STAGE GAIN MEASUREMENTS		
MICROPHONE 1	40X	400∿
MICROPHONE 2	40X	400∿
1st AUDIO	40X	400∿
2nd AUDIO	45X	400∿
OUTPUT (30 WATT)	30X	400∿
OUTPUT (45 WATT)	30X	400∿

SOUND INC. (PLUS SOUND) MODELS
MB6P3, MB6R4, MB6P6, MB6P30PAGE 9



POWER AMP MODEL MB6P30



POWER AMP MODEL MB6P30

SPEAKER CONNECTIONS

Duplicate outputs are provided. A four-prong plug is provided for portable work. This plug has an AC jumper which turns off the AC when the speaker is removed. The plug must always be connected in order to supply AC power to the amplifier. When using the output plug, connect the red wire to the desired impedance on the output board. For permanent wiring, connect speakers directly to the terminals on the output board. Connect one wire to "C" (common ground) and the other wire to desired speaker impedance. When connections are made directly to terminal board, the red wire need not be used. In all cases, (portable and permanent) the green jumper must be connected to 16, if one power amplifier is used, and to 8 if two power amplifiers are used.

When more than two power amplifiers are used, additional matching transformers are required. More than two power amplifiers require a second cabinet, which can house the additional matching transformer. Matching transformers are not necessary if the speakers match the power amplifier impedance directly. The direct output impedance of the 30-watt amplifier is 8 and 16, and of the 45-watt amplifier it is also 8 and 16 ohms. Direct connections can be made by connecting to the five-prong male plug on the rear of the power amplifier. The common on this five-prong male is #2 pin. The low impedance is #4 pin, and the high impedance is #3 pin. When two 30 watts are plugged together for a total of 60 watts, pin #4 is 4 ohms and pin #3 is 8 ohms. When two 45 watts are plugged together, pin #4 is 4 ohms and #3 is 8 ohms.

When there is a large power output, and a number of speakers running on low impendance lines, it will be best to run separate speaker lines from each pair of power amplifiers to their group of speakers. This will prevent the line impedance from becoming two low, and will add duplicate systems; thus, in case one line fails, the other will operate.

SPARTON MODEL 1010

TRADE NAME	Sparton, Model 1010 (Ch. 7L7)
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, (2) 7B5 Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	530-1660KC RATING .56 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The five reference marks stenciled on dial backplate are as follows reading from left to right: 1500KC, 1450KC, 1000KC, 600KC and end limit with tuning cap. fully closed. To set pointer turn tuning cap. fully closed and set pointer to end limit mark.

RMA dummy consists of 200MMFD cap. in series with 20 microhenry choke with choke shunted by 400 MMFD cap. in series with 400Ω carbon resistor.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.02 MFD	High side to Pin 6 (grid) 7Q7. Low side to chassis.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	RMA Dummy	High side to ext. ant. clip. Low side to chassis.	1500KC	1500KC	"	A5,A6, A7	Adjust for maximum output. Trimmers opposite A6 and A7 are factory adjustments and normally need not be adjusted.
3	"	"	600KC	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made. Check calibration at 600KC, 1000KC,and 1500KC.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove ten wood screws holding loop antenna to back of cabinet. Remove loop leads from loop. Remove loop antenna from cabinet.
3. Remove speaker plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Disconnect phono-motor plug.
6. Remove four wood screws holding chassis mounting board in cabinet. Remove mounting board and chassis from cabinet. Remove four screws holding chassis to mounting board.
7. Remove four screws holding speaker in cabinet. Remove speaker from cabinet.

HOWARD W. SAMS & CO., INC. **Indianapolis Indiana**

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DATE 3/48-#485-22 SET #35-FOLDER #22

SPARTON
MODEL 1010 (Ch. 7L7)

SPARTON
MODEL 1010 (Ch. 7L7)

PARTS LIST AND DESCRIPTIONS

SPARTON MODEL 101 (Ch. 7L7)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	8V	
2	Converter	7Q7	7Q7	8AL	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7B5	7B5	6AE	
6	Power Output	7B5	7B5	6AE	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	30	450	PA4307-2	DY-403	EL-424	AF862J4A	UP43145C	▲ Filter
B	15	450						■ "
C	10	450						▲ "
D	30	25						Cathode Bypass
9	.006	600	PC45FM-602	MPH-6-005	TC-26	684-006	DT6D6	Line Filter
10	.001	1000	PC40GN-102	TM-16-001	TR-21	1084-001	MD16D1	Output Plate Bypass
11	.005	600	PC40GL-402	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
12	.05	400	PC40GL-503	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
13	.05	400	PC40GL-503	S-4-05	TC-15	484-05	DT4S5	" "
14	.02	200	PC40GK-203	S-4-02	TC-12	484-02	DT2S2	" "
15	.05	200	PC40HK-503	S-4-05	TC-15	484-05	DT2S5	IF Cathode Bypass
16	.05	400	PC40HL-503	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supply
17	.05	400	PC40HL-503	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
18	.05	200	PC40HK-503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
19	.05	200	PC40HK-503	S-4-05	TC-15	484-05	DT2S5	RF Cathode Bypass
20	100	500	MC60F-101	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
21	100	500	MC60F-101	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
22	100	500	MC60F-101	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
23	200	500	MC60G-201	MO.5-32	1FM-32	1468-0002	5W5T2	Tone Compensation
24	51	500	MC60F-510	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.
25	240	500	MC60G-241	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling

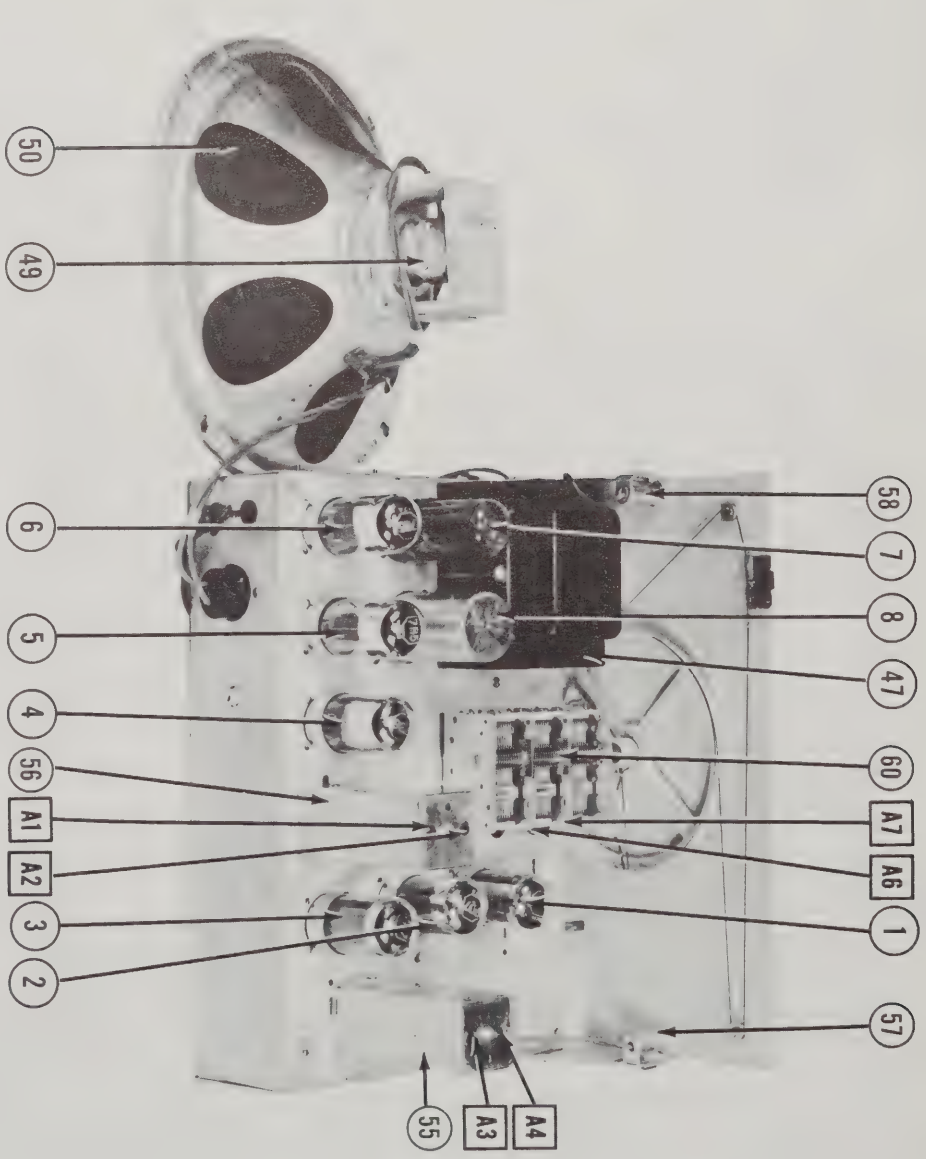
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	2 Meg.	½	PA4401-2	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 26A per instructions
27A	500KΩ	½	PA4400-6	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 27A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
28	2200Ω	½	BR12S-222	BTS-2200	Red-Red-Red Series External Antenna
29	820Ω	½	BR12S-821	BTS-820	Gray-Red-Br. RF Cathode
30	1 Meg.	½	BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
31	22KΩ	½	BR12G-223	BTS-22K	Red-Blk.-Or. Oscillator Grid
32	15KΩ	2	DR12S-153	BT-2-15K	Br.-Grn.-Or. Screen Dropping
33	22KΩ	1	CR12S-223	BTA-22K	Red-Red-Or. Bleeder
34	1000Ω	½	BR12S-102	BTS-1000	Br.-Blk.-Red IF Cathode
35	47KΩ	½	BR12S-473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
36	470KΩ	½	BR12S-474	BTS-470K	Yl.-Vi.-Yl. Diode Load
37	3.3 Meg.	½	BR12S-335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
38	470KΩ	½	BR12S-474	BTS-470K	Yl.-Vi.-Yl. Phono Shunt
39	1 Meg.	½	BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SPARTON PART No.	IRC PART No.	
40	10 Meg.	½	BR12S-106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
41	270KΩ	½	BR12S-274	BTS-270K	Red-Vi.-Yl. AF Plate Load
42	3600Ω	½	BR12G-362	BTS-3300	Or.-Blue-Red Output Screen Dropping
43	470KΩ	½	BR12S-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
44	390Ω	2	DR12G-391	BW-2-390	Or.-White-Br. Output Cathode
45	1000Ω	2	DR12S-102	BT-2-1000	Br.-Blk.-Red Filter
46	1000Ω	2	DR12S-102	BT-2-1000	Br.-Blk.-Red "

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SPARTON PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
47	117V AC @ .56A	680V CT @ .07A	5.1V AC @ 2.0A	6.3V AC @ 2.6A	AB44012-1		T22R05†	

†Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SPARTON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
48	4250Ω CT	3.4Ω	700Ω CT	.4Ω	AB44053-3	A-3850	T22S66	A-2900	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	SPARTON PART No.	JENSEN PART No.	QUAM PART No.	
49	PM	3.4Ω	PC-63000-12	ST-120# Mod. P10-S	10A31	#Replace output transformer to match 6-8Ω voice coil.
	CONE DIA.	VC DIA.				
50	9½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SPARTON PART No.	MEISSNER PART No.	
51	Loop Ant.		.2Ω	AC-67008-3		
52	Ant. Load. Coil		1.5Ω	AA-6780-3		
53	BC RF Coil	1.8Ω	3.2Ω	AA-6756-6	14-1027	
54	Osc. Coil	.9Ω	6Ω	AA-6758-3	14-1040	
55	Input IF	11Ω	11Ω	AA-6800-5	16-6658	Alternate Part Number is AB43502-5
56	Output IF	5.2Ω	5.2Ω	AA-6800-6	16-6660	Alternate Part Number is AB43502-6

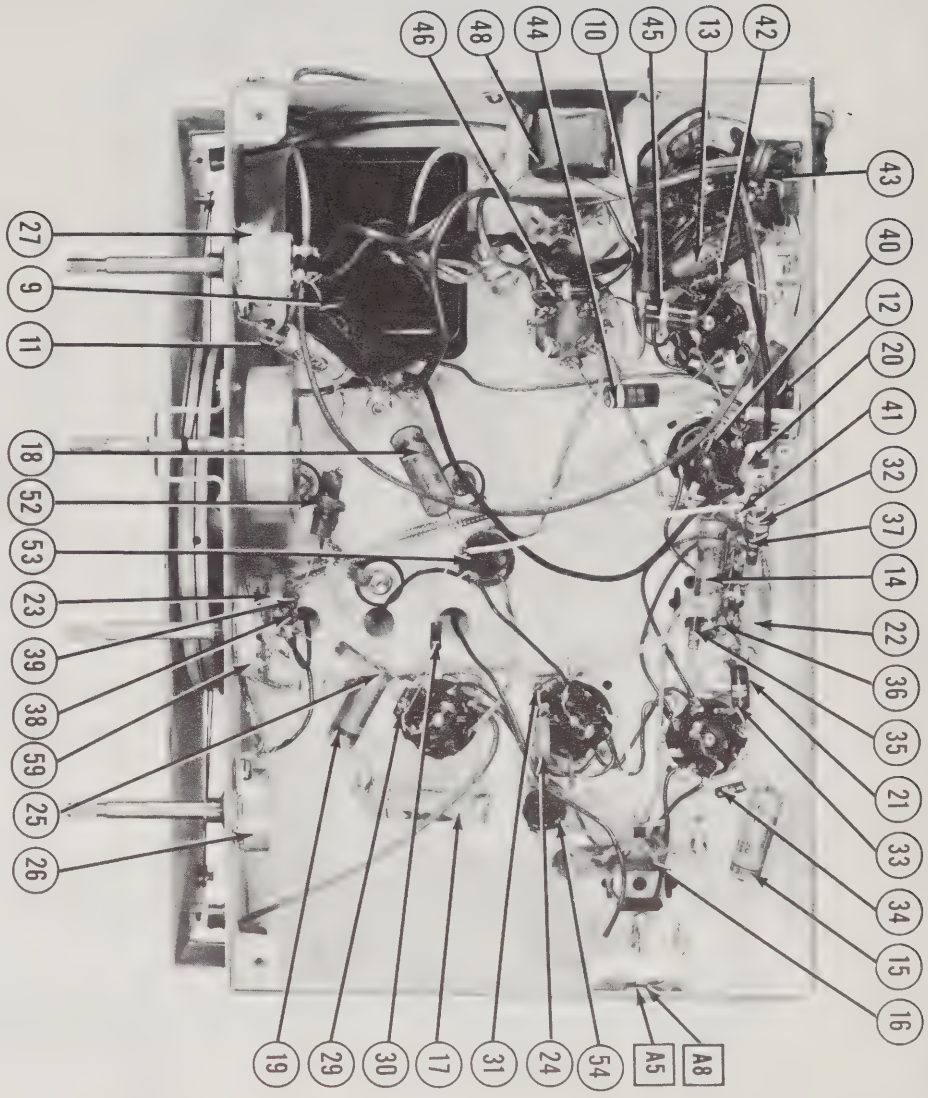
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SPARTON PART No.		
57	Bayonet	6-8	0.25	Blue			Type 44
58	"	"	"	"			" "

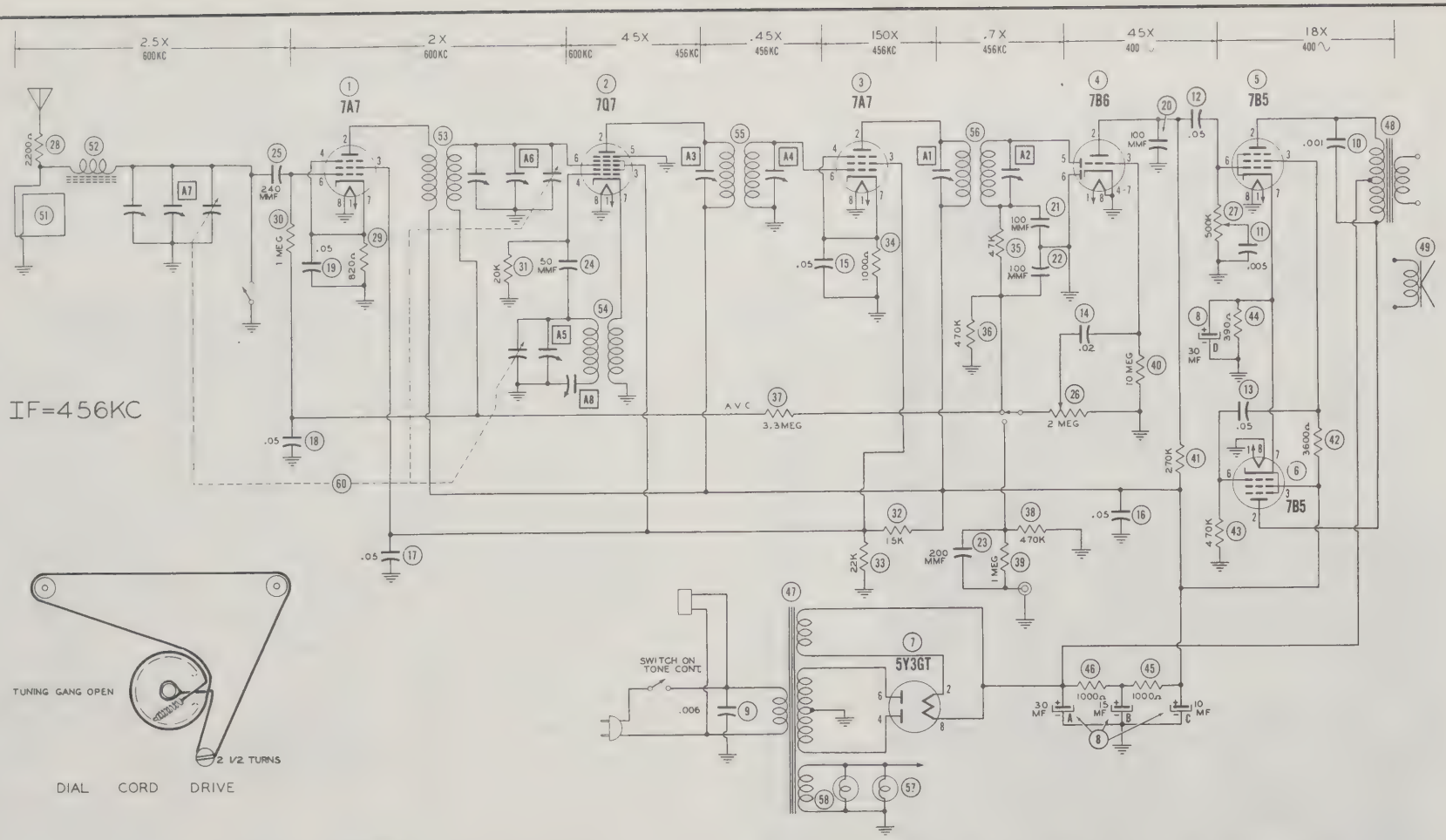
MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
59	Switch	PA4608	Radio-Phono
60	3 Gang Var. Cap.	PB40411	(55-546MMF) each section
	Dial Pointer	PA5407	
	Knob	PA5618	

CHASSIS—BOTTOM VIEW



DATE 3/49-#485-22 SET #55-FOLDER #22



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	[illegible]	250VDC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	7Q7	[illegible]	[illegible]	[illegible]	[illegible]	0V.	-17VDC	0V.	0V.
3	7A7	[illegible]	[illegible]	[illegible]	4.2VDC	0V.	[illegible]	[illegible]	[illegible]
4	7B6	[illegible]	105VDC	-.4VDC	0V.	[illegible]	[illegible]	[illegible]	0V.
5	7B5	[illegible]	[illegible]	230VDC	250VDC	0V.	0V.	18.5VDC	0V.
6	7B5	[illegible]	250VDC	250VDC	0V.	[illegible]	[illegible]	18.5VDC	0V.
7	5Y3GT	0V.	300VDC	0V.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	.1Ω	42KΩ	20KΩ	800Ω	0Ω	5 Meg.	800Ω	[illegible]
2	7Q7	.1Ω	42KΩ	20KΩ	63KΩ	0Ω	4 Meg.	[illegible]	[illegible]
3	7A7	.1Ω	42KΩ	20KΩ	1KΩ	0Ω	11Ω	1KΩ	[illegible]
4	7B6	.1Ω	63KΩ	10 Meg.	0Ω	420KΩ	0Ω	[illegible]	[illegible]
5	7B5	.1Ω	42KΩ	45KΩ	40KΩ	INF.	[illegible]	[illegible]	[illegible]
6	7B5	.1Ω	40KΩ	41KΩ	INF.	INF.	[illegible]	[illegible]	[illegible]
7	5Y3GT	INF.	42KΩ	INF.	70Ω	INF.	65Ω	[illegible]	[illegible]

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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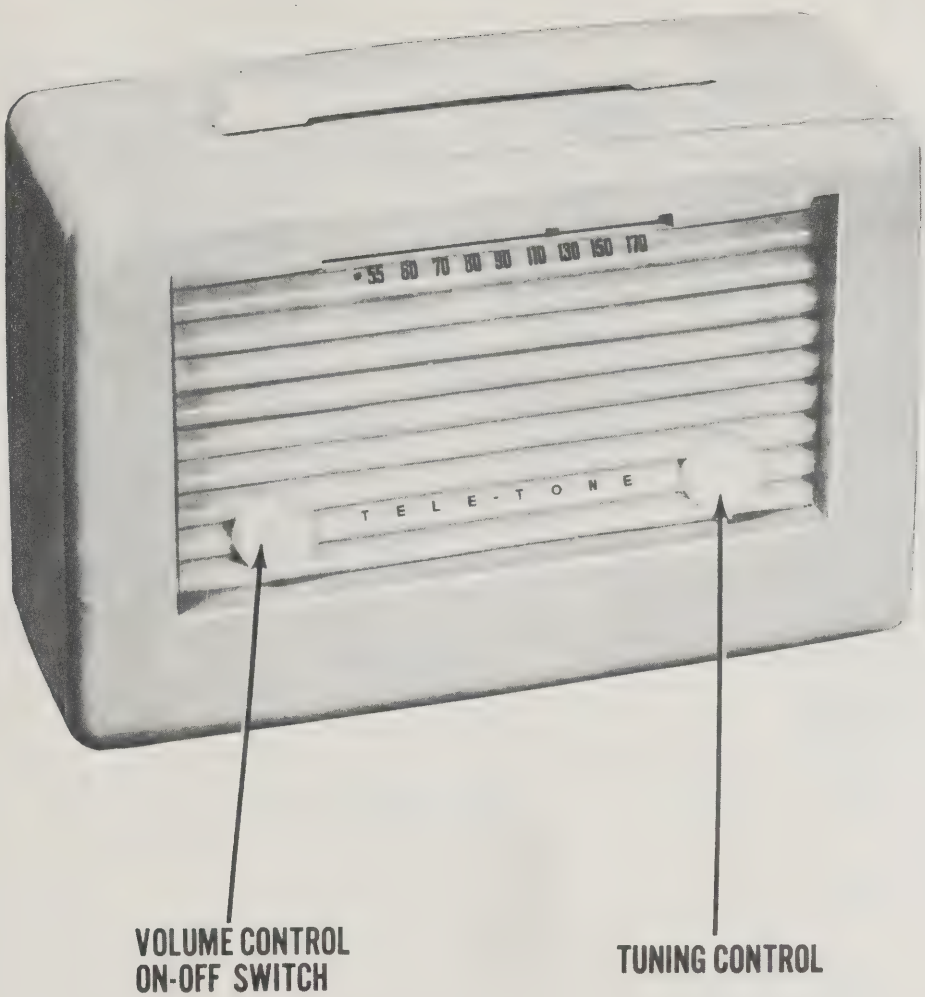
485-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TELE-TONE MODELS 156, 172, 176
(Ch. SERIES U) BATTERY OPERATED



TELE-TONE MODELS 156, 172, 176
(Ch. SERIES U) BATTERY OPERATED

TELE-TONE MODEL 156

TRADE NAME	Tele-Tone, Models 156, 172, 176 (Ch. Series U)
MANUFACTURER	Tele-Tone Radio Co., 540 W. 58th St., New York 19, N.Y.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	245MA @ 1.5 Volts DC and 8.6MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-#485-23 SET #35-FOLDER #23

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TELE-TONE PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AC	
3	Det.-AVC-AF	1S5	1S5	5AT	
4	Power Output	3S4	3S4	7BK	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TELE-TONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	20	150		M-20-150	UT-201	PRS150-20	BR2015	Battery Bypass
5B	16	150	CE-14	M-16-150	UT-161	PRS150-16	BR1615	Alternate Battery Bypass
6	.005	600	CP-502-1	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
7	.002	600	CP-202-2	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
8	.01	200	CP-103-3	S-4-01	TC-11	484-01	DT2S1	AF Screen Bypass
9	.001	600	CP-102-3	S-6-001	TC-21	684-001	DT6D1	Audio Coupling
10	.01	200	CP-103-3	S-4-01	TC-11	484-01	DT2S1	Conv. Decoupling
11	.05	200	CP-503-4	S-4-05	TC-15	484-05	DT2S5	AVC Filter
12	100	50	CM-101-2	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass-Cer.
13	100	50	CM-101-2	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter-Cer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	
14	1 Meg.	½	VC-6			Volume Control & Sw.

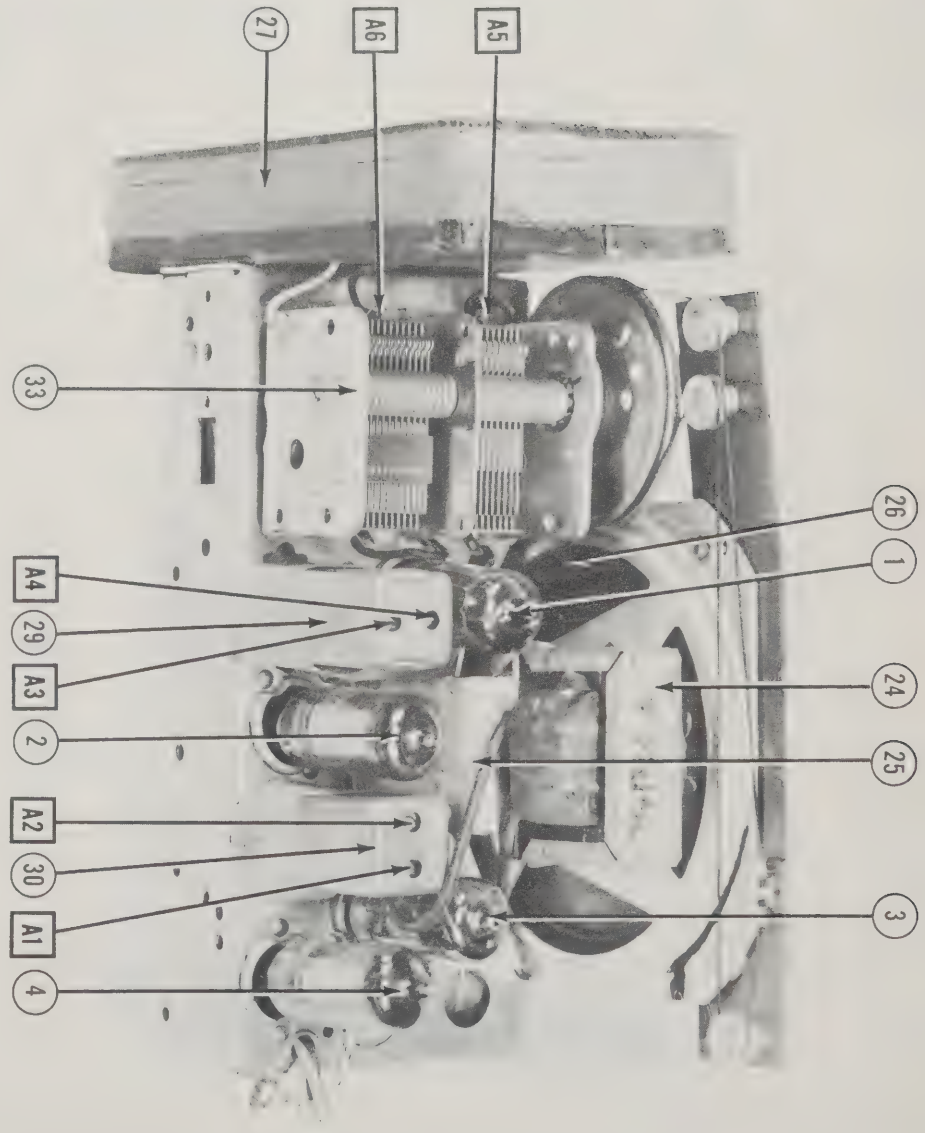
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TELE-TONE PART No.	IRC PART No.	
15	100KΩ	½	RC-1[illegible]4-1	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
16	1MΩ	½	RC-1[illegible]-1	BTS-1M	Br.-Grn.-Or. Converter Decoupling
17	3.3 Meg.	½	RC-335-1	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
18	2.2 Meg.	½	RC-225-1	BTS-2.2 Meg.	Red-Red-Grn. 1st IF Transformer Shunt
19	10 Meg.	½	RC-106-1	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	3.3 Meg.	½	RC-[illegible]35-1	BTS-[illegible].3 Meg.	Or.-Or.-Grn. AF Screen Dropping
21	1 Meg.	½	RC-105-1	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	2.2 Meg.	½	RC-225-1	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
23	820Ω	½	RC-821-2	BTS-820	Gray-Red-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELE-TONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
24	7000Ω	3.2Ω	360Ω	.6Ω	Part of SP-41-T	A-3870*	T-2347*	A-2931*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TELE-TONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
25	FIELD PM	VC IMP. 3.2Ω	SP-41-7		4A1†	†Drill new mounting holes and trim flange.
26	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

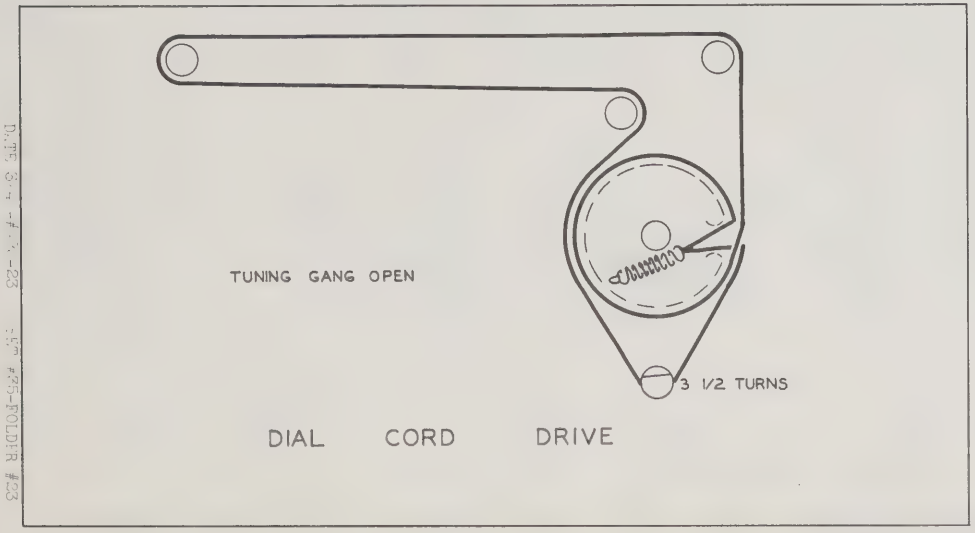
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
27	Loop Ant.		.3Ω	LP6		
28	Osc. Coil	2.5Ω	6.5Ω	LC4	14-1040‡	‡Add 50 MMFD from osc. grid to high side tuning cap.
29	Input IF	17.5Ω	21.5Ω	LF22	16-6678	
30	Output IF	17.5Ω	21.5Ω	LF22	16-6678	

BATTERIES

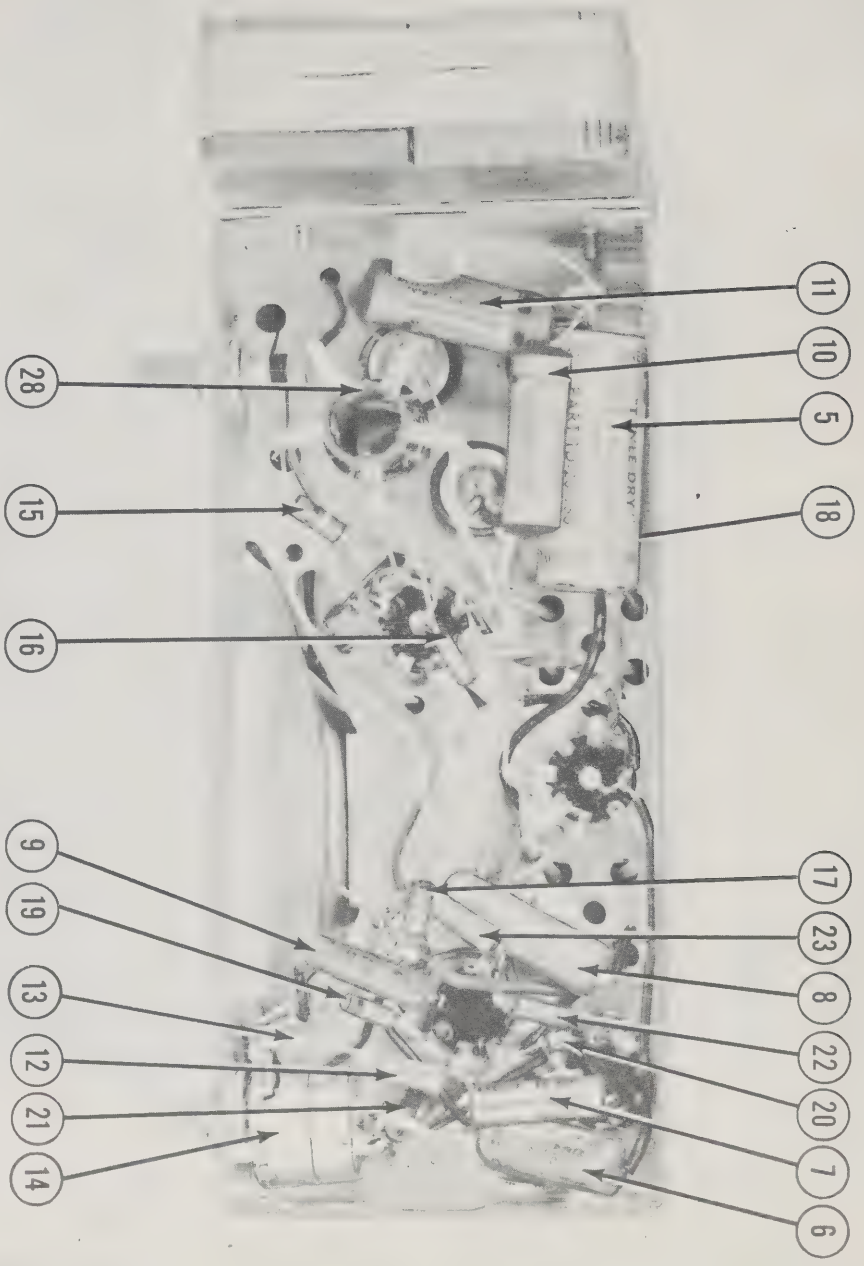
ITEM No.	VOLTAGE	TELE-TONE PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
31	1.5V "A"		#950			#2R			3 Used in Parallel
32	67.5V"B"			#467			#XX-45		

MISCELLANEOUS

ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
33	2 Gang Var. Cap.	CV10	(27-475MMF, 18-184MMF)
	Dial Pointer	PN6	

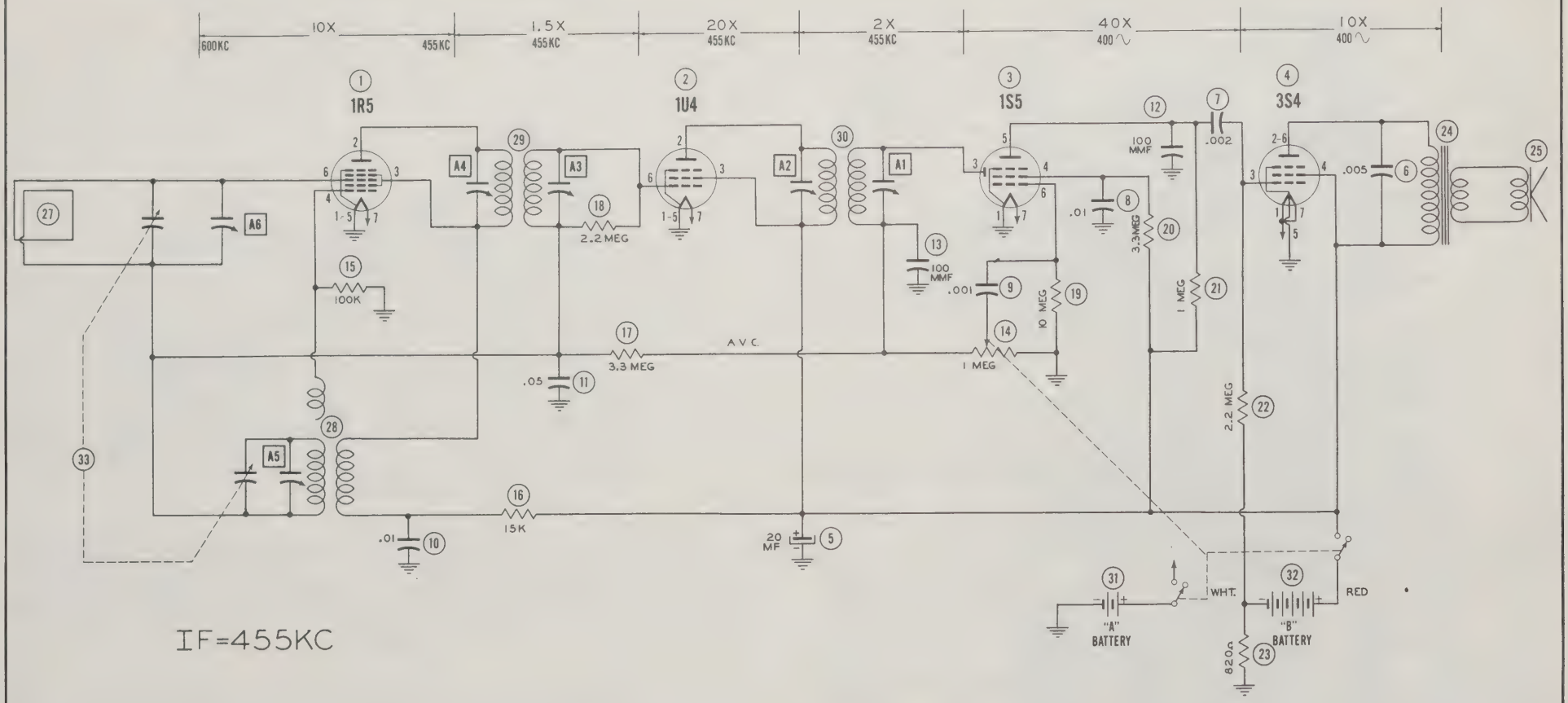


CHASSIS—BOTTOM VIEW



D-75 3-4-#-23 3-3-#25-FOLDR #23

TELE-TONE MODELS 166, 172, 176
(Ch. Series U) BATTERY OPERATED



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	32VDC	32VDC	-11VDC§	0V.	0V.	1.4VDC
2	1U4	0V.	62VDC	62VDC	0V.	0V.	0V.	1.4VDC
3	1S5	0V.	-7VDC	0V.	11VDC	9VDC	0V.	1.4VDC
4	3S4	1.4VDC	59VDC	-1VDC	62VDC	0V.	59VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	1 Meg.	1 Meg.	100KΩ	*	1 Meg.	*
2	1U4	*	1 Meg.	1 Meg.	1MΩ	*	1 Meg.	*
3	1S5	*	750Ω	1 Meg.	4.3 Meg.	2 Meg.	10 Meg.	*
4	3S4	*	1 Meg.	2.2 Meg.	1 Meg.	*	1 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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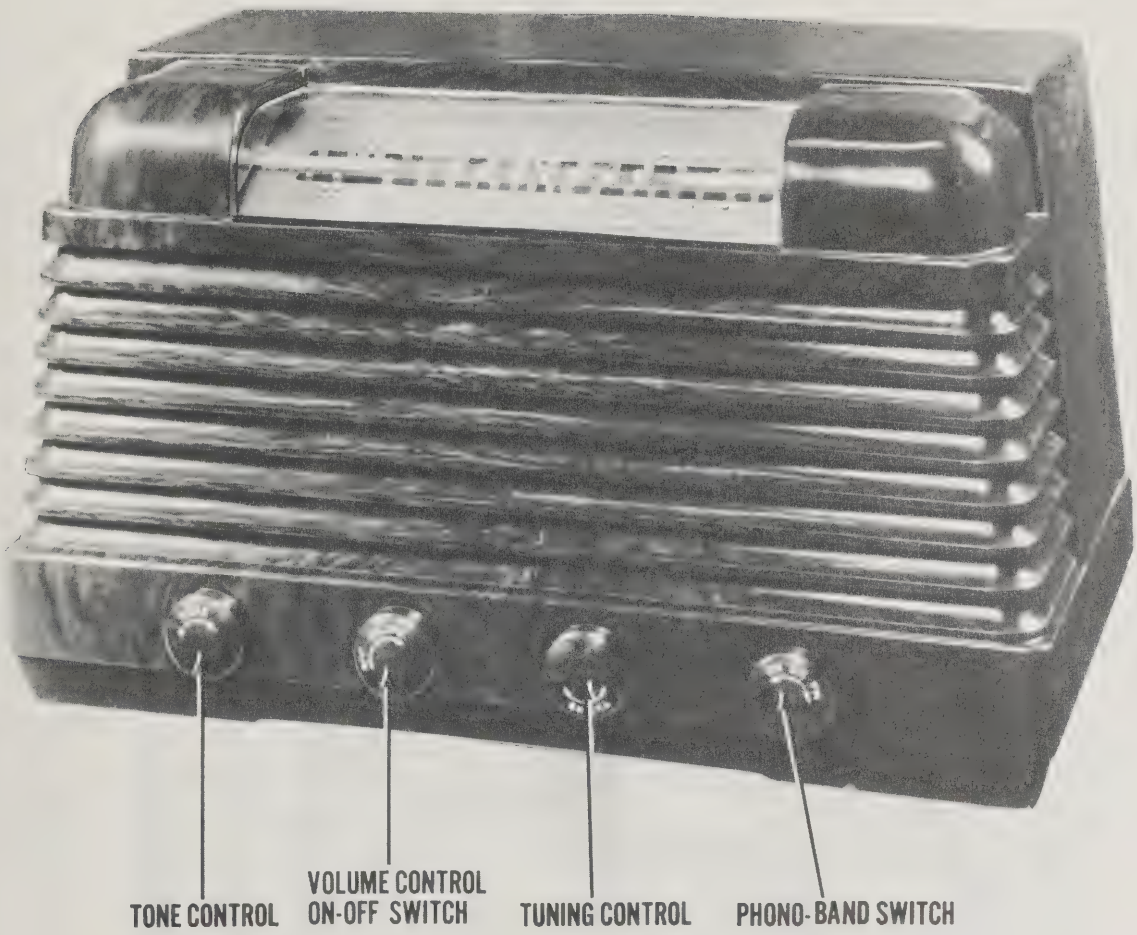
485-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

TRUETONE MODEL
D2819 (Fact. #26A82-738)



TRUETONE MODEL
D2819 (Fact. #26A82-738) PAGE 1

TRUETONE MODEL D2819	
TRADE NAME	Truetone, Model D2819 (Factory No. 26A82-738)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 6BE6 AM-FM Conv., 6AB6 1st IF Amp., 6BA6 2nd IF Amp., 6AL5 Ratio Det., 6AT6 AM Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.34 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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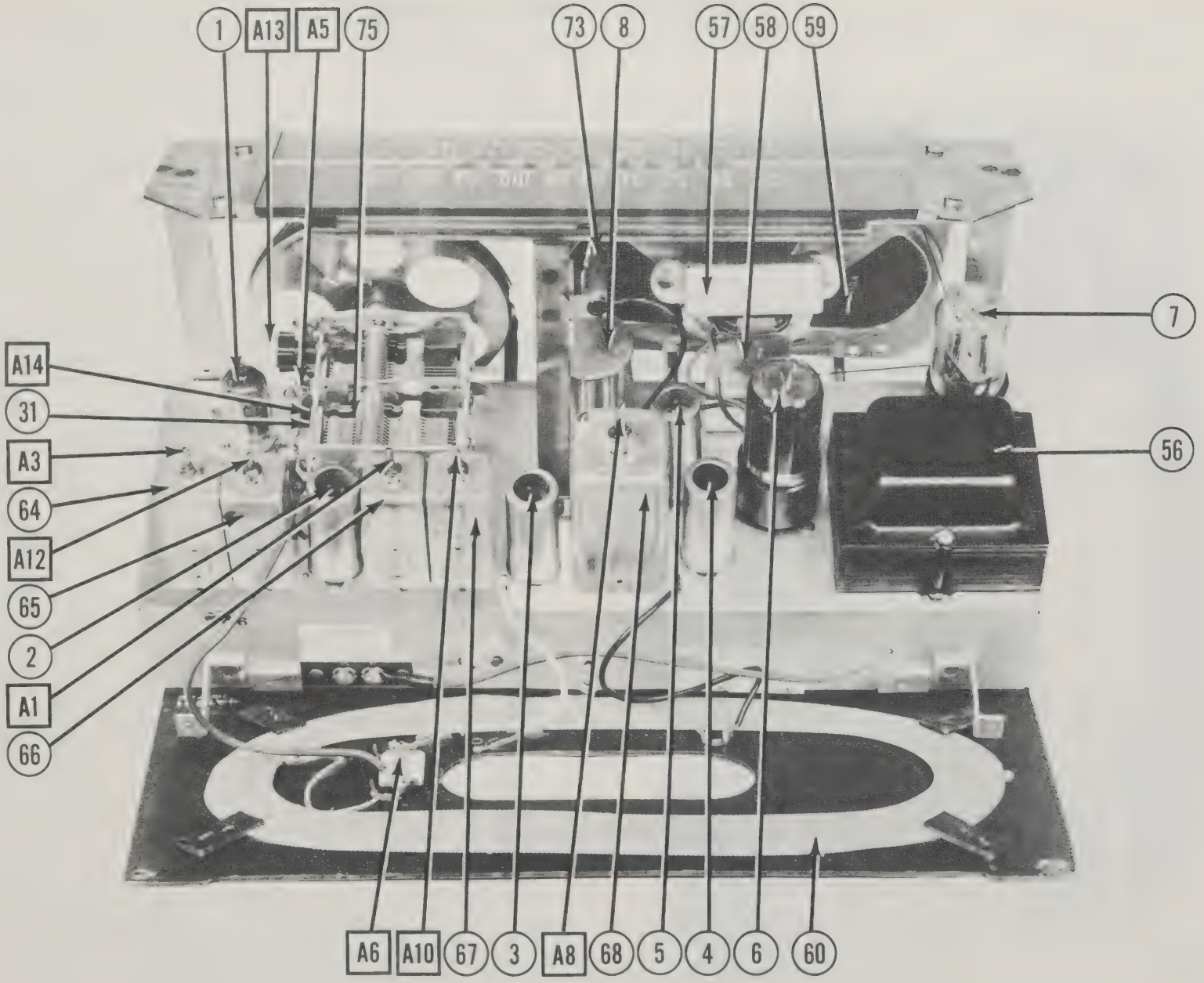
DATE 3/48-#485-24 SET #35-FOLDER #24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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	AM-FM Conv.	6BE6	6BE6	7GR	
2	1st IF Amp.	6BA6	6BA6	7BK	
3	2nd IF Amp.	6BA6	6BA6	7BK	
4	Ratio Det.	6AL5	6AL5	6BT	
5	AM Det.-AVC-AF	6AT6	6AT6	7BF	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	40	450	45X460	DY-A14	EL-4221		UP4445C	◓ Filter
B	40	150						◘ "
C	20	25						Cathode Bypass
9	.1	100	45X761	M-4-450	UT-41	PRS150-4	PR415	Stabilizing Cap.
10	.001	600	B66102	S-5-001	TC-21	484-001	DT6D1	Output Plate Bypass
11	.004	200	B66402	S-5-004	TC-24	484-004	DT6D4	Tone Comp.
12	.02	400	B66203	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.005	400	B66502	S-4-005	TC-25	484-005	DT6D5	" "
14	.04	200	B66403	S-5-04	TC-14	484-04	DT4S4	Tone Comp.
15	.01	400	B66103	S-4-01	TC-11	484-01	DT4S1	Conv. Screen Decoup.
16	.05	200	B66503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
17	220		47X468	MO.5-330	1FM-33	1468-00025	5W5T25	AF Plate Bypass
18	68		47X471	MOS.5-47	MS-47	1469-00047	5W547	Tone Comp.
19	470		47X510	MO.5-33	1FM-33	1468-0005	5W5T5	Diode Load Cap.
20	2700		47X492	MW.5-23	1FM-23	1467-00025	1W5D	De-emphasis
21	5000		47X507	MW.5-25	1FM-25	1467-005	1D5D5	2nd IF Decoupling
22	5000		47X507	MW.5-25	1FM-25	1467-005	1D5D5	2nd IF Cathode Bypass
23	5000		47X507	MW.5-25	1FM-25	1467-005	1D5D5	1st IF Decoupling
24	5000		47X507	MW.5-25	1FM-25	1467-005	1D5D5	1st IF Cathode Bypass
25A	50		‡	MO.5-45	1FM-45	1468-00005	5W5T5	Diode RF Filter
B	50		‡	MO.5-45	1FM-45	1468-00005	5W5T5	" " "
26	5000		47X507	MW.5-25	1FM-25	1467-005	1D5D5	Conv. Plate Decoupling
27	100		47X511	MO.5-31	1FM-31	1468-0001	5W5T1	Conv. Screen Bypass
28	5		47X513	MO.5-55	MS-55	1469-00005	5W5V5	Feedback
29	10		47X512	MO.5-41	MS-41	1469-00001	5W5Q1	Fixed Trimmer
30	47		47X517	MO.5-45	1FM-45	1468-0005	5W5Z5	Osc. Grid Cap.
31	100		47X511	MOS.5-31	MS-31	1469-0001	5W5T1	Fixed Pad
32	500		47X508	MO.5-35	1FM-35	1467-0005	5W5T5	RF Bypass
33	100		47X511	MO.5-31	1FM-31	1468-0001	5W5T1	Line Ant. Coupling

†Omit one section.
‡Items 25A, 25B and 76 may be obtained as a unit under part number 76X1.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	
34A	100K Ω	2	36X347	D1S-143X	A7-73	Volume Control tapped @ 100KΩ
B	Shaft		Not Req.	E	Kss-3	Attach to 34A per instructions
C	Switch		" "	41	Sw-a	" " " " "
35A	3 Meg.	2	40X134	D1S-140	A1-67-2	Tone Control
B	Shaft		Not Req.	E	aSS-3	Attach to 35A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
[illegible]	Loop Ant.	.1Ω	.1Ω	9A1931		
61	FM Ant. Coil		0Ω	9A1937		
62	AM Osc. "	.5Ω	5.1Ω	9A1929	[illegible]	
63	FM " "	[illegible]	[illegible]	[illegible]		
64	AM Input IF	15.5Ω	15.1Ω	9A1934	[illegible]	
65	FM " "	.6Ω	.1Ω	9A1932		
66	AM Output IF	14.8Ω	14.8Ω	9A1935	[illegible]	
67	FM " "	.6Ω	.1Ω	9A1933		
68	Disc.Trans.	.9Ω	.1Ω	9A1936		
69	RF Choke		.3Ω	9A1882		
70	" "		.3Ω	9A1882		
71	Parasitic Choke		[illegible]	9A1940		
72	Line Choke	[illegible]	[illegible]	9A1930		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
73	[illegible]	3-4	0.15	Brown	7A105		[illegible]

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
74	Switch	2A374	Band
75	2 Gang Var. Cap.	14A198	AM (18-534MMF, 30-206MMF)
A5	Trimmer	17A123	BC Osc. Adj.
A13	"	17A247	FM " "
	Dial Scale	58X698	
	Dial Pointer	15X236	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
36	22KΩ	½	B84223	BTS-22K	Red-Red-Or. Oscillator Grid
37	1500Ω	½	B84152	BTS-1500	Br.-Grn.-Red Converter Screen Decoupling
38	1200Ω	½	B84122	BTS-1200	Br.-Red-Red Converter Plate Decoupling
39	8200Ω	2	D84822	BT-2-8200	Gray-Red-Red Bleeder
40	68Ω	½	B83680	BW-½-68	Blue-Gray-Blk. 1st IF Cathode
41	1200Ω	½	B84122	BTS-1200	Br.-Red-Red 1st IF Decoupling
42	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
43	68Ω	½	B83680	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
44	1000Ω	½	B85102	BTS-1000	Br.-Blk.-Red 2nd IF Decoupling
45	27KΩ	½	B84273	BTS-27K	Red-Vi.-Or. De-emphasis
46	6800Ω	½	B84682	BTS-6800	Blue-Gray-Red Ratio Detector Diode Load
47	6800Ω	½	B84682	BTS-6800	Blue-Gray-Red " " " "
48	1 Meg.	½	B85105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
49	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Series Phono
50	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
51	10 Meg.	½	B85106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
52	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
53	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
54	270Ω	½	B84271	BW-½-270	Red-Vi.-Br. Output Cathode
55	1000Ω	2	D84102	BT-2-1000	Br.-Blk.-Red Filter
76	47KΩ	½	‡	BTS-47K	Yl.-Vi.-Or. Diode RF Filter

‡ Items 25A & 25B and 76 may be obtained as a unit under part number 76X1.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
56	117V AC @ .34A	340V CT @ .063A	6.3V AC @ 2.3A		53X291		T23R01#	

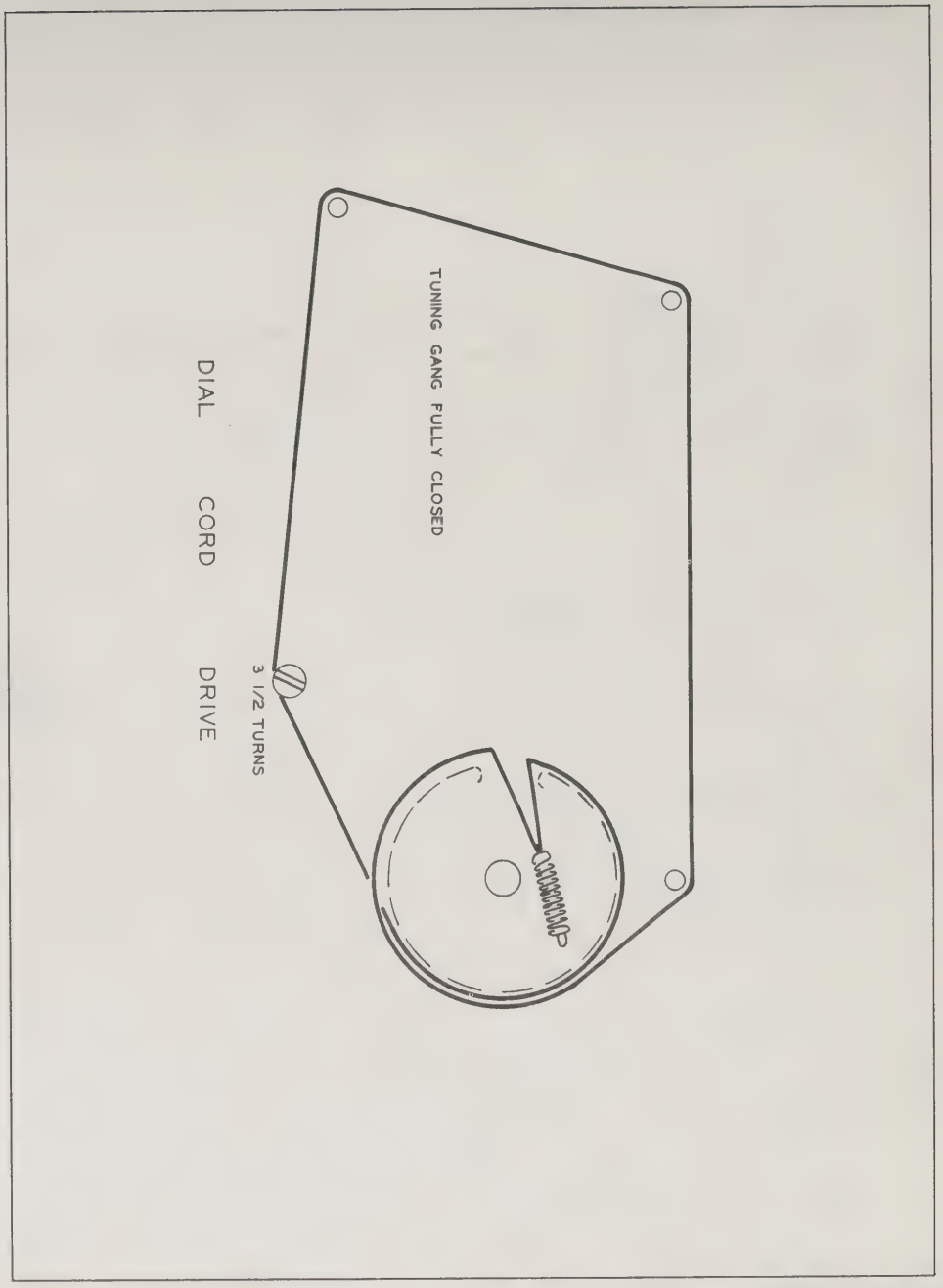
#Drill new mounting holes and add series resistor to reduce plate voltage.

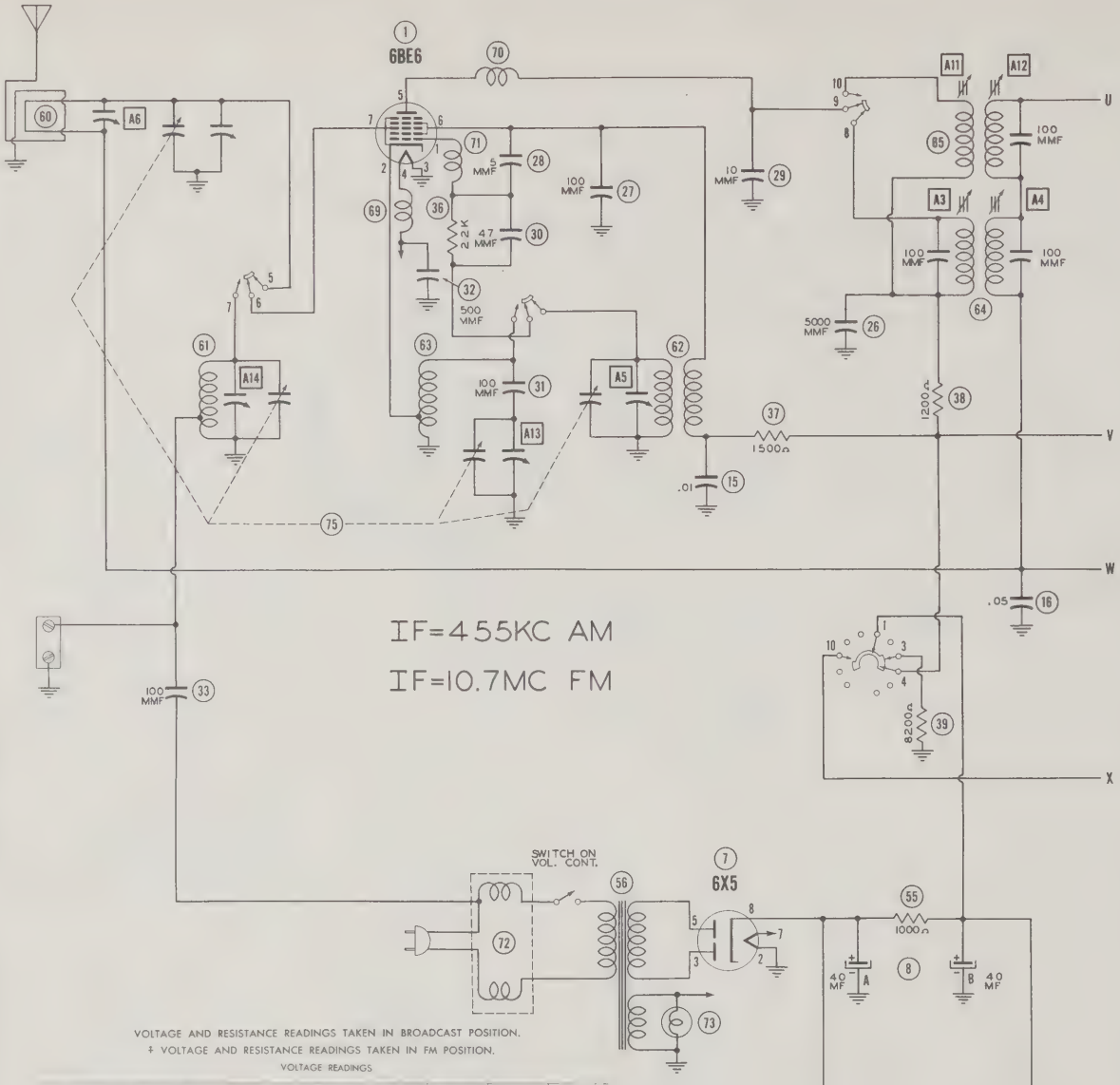
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
57	4800Ω	3.0Ω	450Ω	.7Ω	Part of 13A475	A-3823	T23S7	A-2901	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
58	FIELD PM	VC IMP. [illegible]	12A478		[illegible]	*Fabricate new mounting bracket.
59	CONE DIA. 4"x6"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1									
2									
‡ 3									
‡ 4									
5									
6									
7									

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1									
2									
‡ 3									
‡ 4									
5									
6									
7									

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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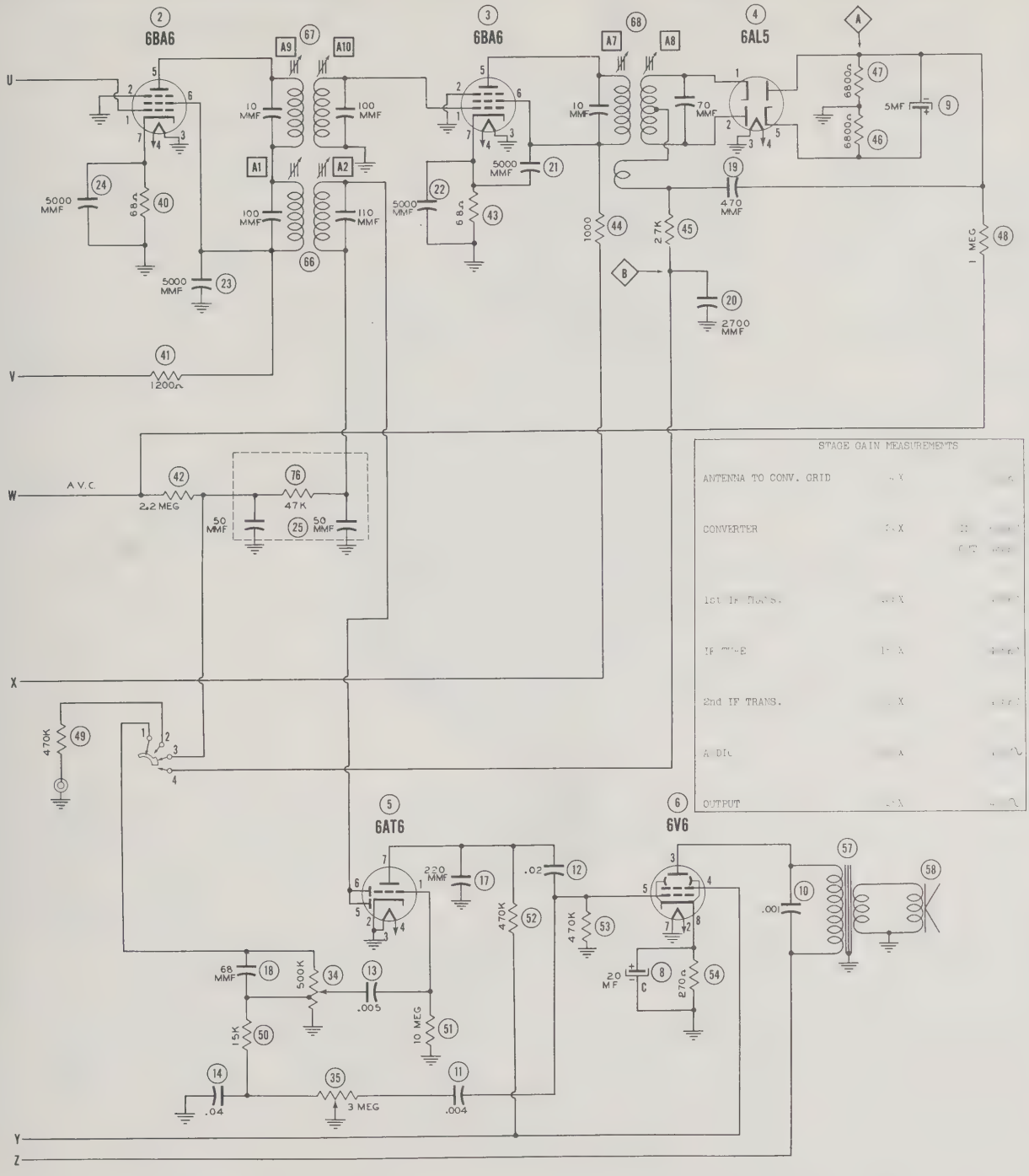
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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485-24

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use insulated alignment screwdriver for all adjustments.
Allow receiver and signal generator to warm up for about 15 minutes prior to attempting alignment.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 1 (grid) 6BA6 IF Tube (2). Low side to chassis.	455KC	BC (center fully open. position)	Tuning cap.	Across voice coil	A1,A2	Adjust for maximum output.
2	.1 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	455KC	"	"	"	A3,A4	" " " "
3	.1 MFD.	"	1620 KC	"	"	"	A5	" " " "
4	50 MMFD	High side to ext. ant. clip. Low side to chassis.	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output. Set pointer to 1400KC calibration mark. (Trimmers on ant. stator of tuning cap. are factory adjustments and ordinarily need not be changed.)

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	.01 MFD.	High side to Pin 1 (grid) 6BA6 2nd IF Tube (3). Low side to chassis.	10.7MC (unmodulated)	FM (fully clockwise)	Tuning cap. fully open.	DC probe to Point (A). Common to chassis	A7	Adjust for maximum deflection.
6	.01 MFD	"	"	"	"	DC probe to Point (A). Common to chassis	A7	Use a zero centered VTVM if available. Adjust for zero deflection. Repeat Steps 5 & 6 until no further improvement can be made.
7	.01 MFD	High side to Pin 1 (grid) 6BA6 1st IF Tube (2). Low side to chassis.	"	"	"	DC probe to Point (A). Common to chassis	A9,A10	Adjust for maximum deflection on alternate signal to give same maximum reading as obtained in Step 5.
8	.01 MFD	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	"	A11, A12	"
9	300Ω carbon res	Disconnect built in FM ant. lead. High side sig. gen. in series with 300Ω resistor to ungrounded FM ant. terminal Low side to chassis.	108.5MC (unmodulated)	"	"	"	A13	Adjust for maximum deflection.
10	"	"	104.5MC (unmodulated)	"	Tune for maximum deflection.	"	A14	Rock tuning cap. and adjust for maximum deflection. Repeat Steps 9 & 10 until no further improvement can be made.

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

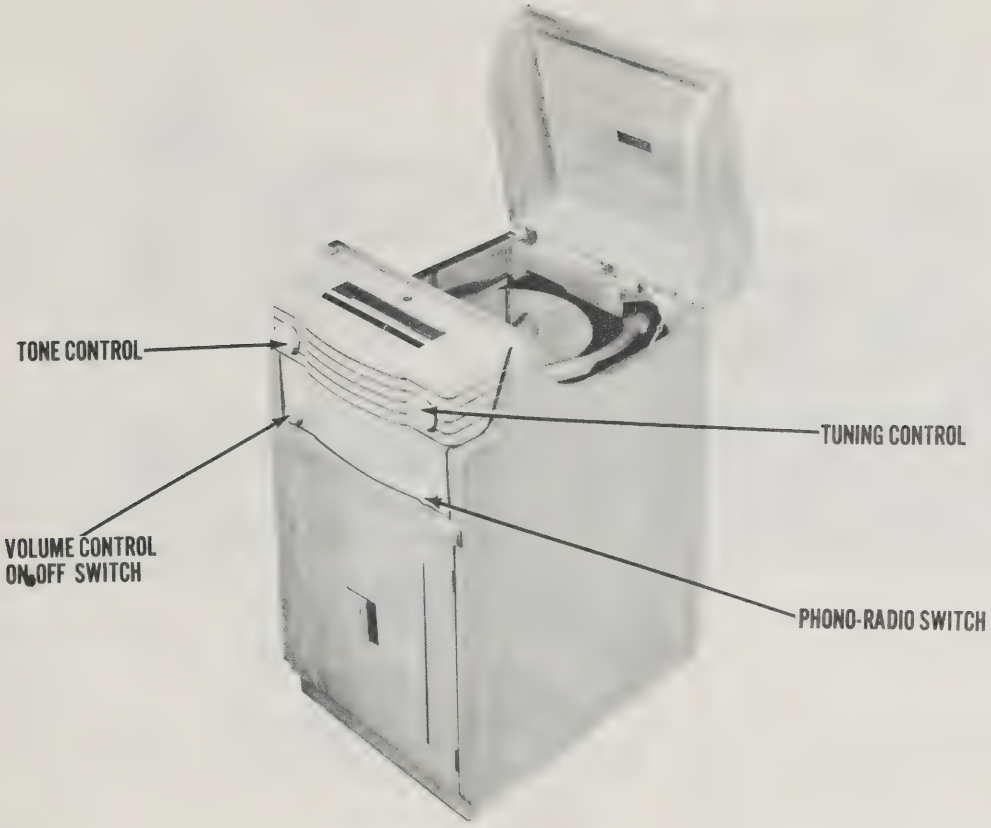
Use frequency modulated signal 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5	.01 MFD	High side to Pin 1 (grid) 6BA6 1st IF Tube. Low side to chassis.	10.7MC (Freq. Mod.)	FM (fully clockwise)	Tuning cap. fully open.	Vertical input to Point (A). Ground to chassis.	A7,A10, A9	Disconnect 5 MFD cap. from Point (A). Adjust A7, A10 & A9 for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
6	.01 MFD	Connect 100KΩ resistor from Pin 7 (grid) 6BE6 to switch. Connect 100KΩ resistor from Pin 7 to chassis making leads as short as possible. High side of sig gen. to Pin 7. Low side to chassis.	"	"	"	"	A12, A11	Adjust for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
7	.01 MFD	Remove 100KΩ resistor from Step 6. Reconnect Pin 7 6BE6 to switch. High side to Pin 1 (grid) 6BA6 1st IF Tube. Low side to chassis.	"	"	"	Vertical input to Point (B). Ground to chassis.	A8	Reconnect 5 MFD to Point (A). Adjust A8 for maximum straightness of crossover lines with crossover occurring at center of Pattern of Fig. 2.
8	300Ω carbon res.	Remove built in FM Ant. lead from FM ant. terminal strip. High side of sig gen. to ungrounded FM ant. terminal. Low side to chassis.	108.5MC (Freq. Mod.)	"	"	Vertical input to Point (A). Ground to chassis.	A13	Disconnect 5 MFD cap. from Point (A). Adjust A13 for coincidence of pattern of Fig. 1.
9	"	"	104.5MC (Freq. Mod.)	"	Tune for coincidence.	"	A14	Adjust for maximum amplitude of pattern of Fig. 1. Repeat Steps 8 & 9 until no further improvement can be made. Reconnect 5 MFD cap. to Point (A)

FIG. 1

FIG. 2

WESTINGHOUSE MODELS H-153
H-153A, H-155, H-171 (Ch. V-2103



WESTINGHOUSE MODEL H-171

TRADE NAME	Westinghouse, Models H-153, H-153A, H-155, H-171 (Ch. V-2103)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pa.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 6SA7 Converter, 6SF7 IF Amp.-Det.-AVC, 6SC7 AF Amp.-Phase Inv., (2) 25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	105-120 Volts AC
TUNING RANGE—BROADCAST	550-1600KC RATING .42 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 2 (grid) 6SF7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	"	"	A3,A4.	Adjust for maximum output.
3	200MMFD	High side to ext. ant. terminal. Low side to B-.	1615KC	"	"	A5	" " " "
4		Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7	6SA7	8R	
2	IF Amp.-Det.-AVC	6SF7	6SF7	7AL	
3	AF Amp.-Phase Inv.	6SC7	6SC7	8S	
4	Power Output	25L6GT	25L6GT	7AC	
5	" "	25L6GT	25L6GT	7AC	
6	Rectifier	25Z6GT	25Z6GT	7A	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTING. PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	V-3304	DSB-5030-150	TA-530		EDL5315	Filter-Grn.
B	50	150						" -Red
8	.05	400	RCP10W405A	TFM-4-05	TC-11	484-05	DT4S5	Rectifier Bypass
9	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
10	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	" "
11	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
12	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	" "
13	.1	400	RCP10W41MA	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
14	.005	600	RCP10W505A	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
15	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
16	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	Phono Shunt
17	.1	400	RCP10W410A	S-4-1	TC-1	484-.1	DT4P1	Phono Isolation
18	.05	400	RCP10W405A	S-4-05	TC-15	484-05	DT4S5	AVC Filter
19	.05	400	RCP10W405A	S-4-05	TC-15	484-05	DT4S5	" "
20	.05	400	RCP10W405A	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
21	.2	400	RCP10W420A	S-4-2	TC-2	484-.2	DT4P2	Line Isolation
22	.1	400	RCP10W410A	S-4-1	TC-1	484-.1	DT4P1	Tuning Cap. Isolation.
23	.01	400	RCP10W401A	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Isolation
24	300	500	RCM20A301K	MO.5-33	1FM-33	1468-0003	5W5T3	AF Plate Bypass
25	68	500	RCM20A680K	MO8.5-47	MS-47	1467-00007	5W5Q7	Osc. Grid Cap.

CONTROLS

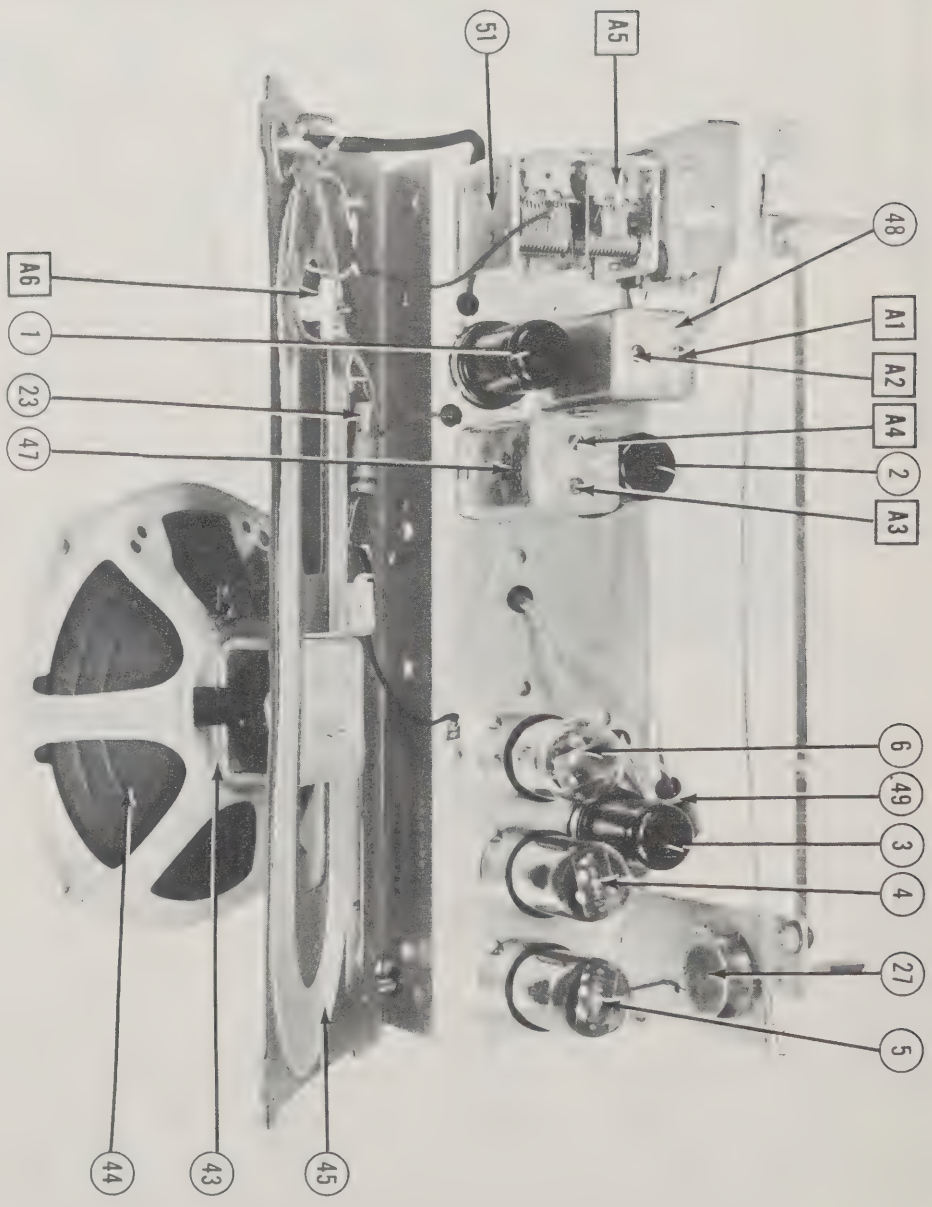
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTING. PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	1 Meg.	½	V-3308	D1S-137	M-64-2	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 25A per instructions
C	Switch		" "	41	SW-A	" " " " "
27A	1 Meg.	½	V-3303	D1S-137	M-64-2	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
28	22KΩ	½	RC10AE223M	BTS-22K	Red-Red-Or. Oscillator Grid
29	22KΩ	½	RC10AE223M	BTS-22K	Red-Red-Or. AVC Network
30	220KΩ	½	RC10AE224M	BTS-220K	Red-Red-Yl. Line Isolation
31	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
32	10 Meg.	½	RC10AE106M	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
33	220KΩ	½	RC20AE224K	BTS-220K	Red-Red-Yl. AF Plate Load
34	180KΩ	½	RC20AE184K	BTS-180K	Br.-Gray-Yl. Phase Inverter Plate Load
35	82KΩ	½	RC10AE823K	BTS-82K	Gray-Red-Or. Phase Inverter Grid
36	270KΩ	½	RC10AE274K	BTS-270K	Red-Vi.-Yl. Output Grid
37	330KΩ	½	RC10AE334K	BTS-330K	Or.-Or.-Yl. Output Grid
38	91Ω	1	RC30AE910J	BW-1-100	White-Br.-Blk. Output Cathode
39	1500Ω	2	RC40AE152M	BT-2-1500	Br.-Grn.-Red Filter
40	22Ω	½	RC20AE220M	BW-½-22	Red-Red-Blk. Rectifier Ballast
41A	50Ω		V-3311	ABA-50*	Line Dropping
B	12Ω				" "
42	3300Ω	½	RC10AE332M	BTS-3300	Or.-Or.-Red Converter Screen Dropping

*Set slider at 12Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTINGHOUSE	STANCOR	THORDAR'N	MERIT	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
42	4800Ω CT	3.2Ω	260Ω CT	.5Ω	V-3297	A-3823	T22546	A-2900	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WESTINGHOUSE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-110		
43	PM	3.2Ω	V-3422	Mod. P6-X	6A15	
	CONE DIA.	VC DIA.				
44	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

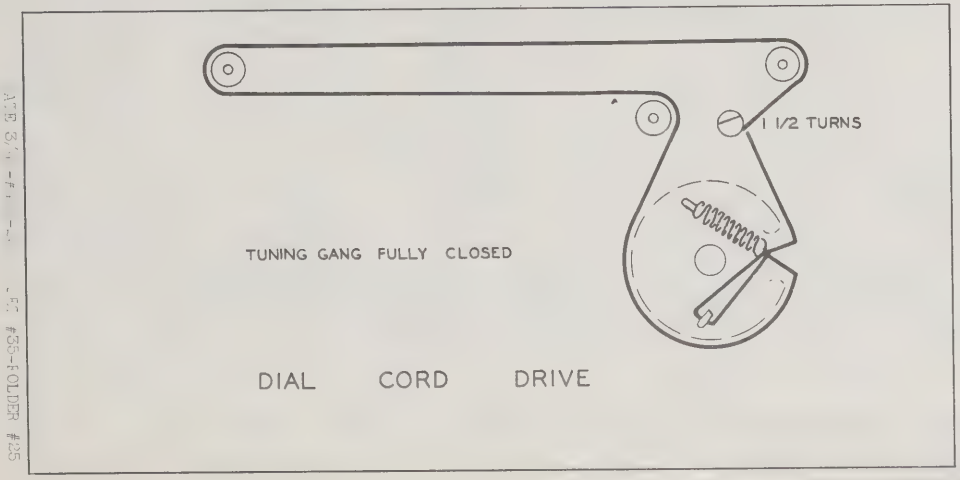
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
45	Loop Ant.	CΩ	1Ω	V-3660		
46	Osc. Coil		4.3Ω	V-3382	14-1040	
47	Input IF	29Ω	27Ω	V-3328	16-6658	
48	Output IF	21Ω		V-3329	16-6670	

DIAL LIGHT

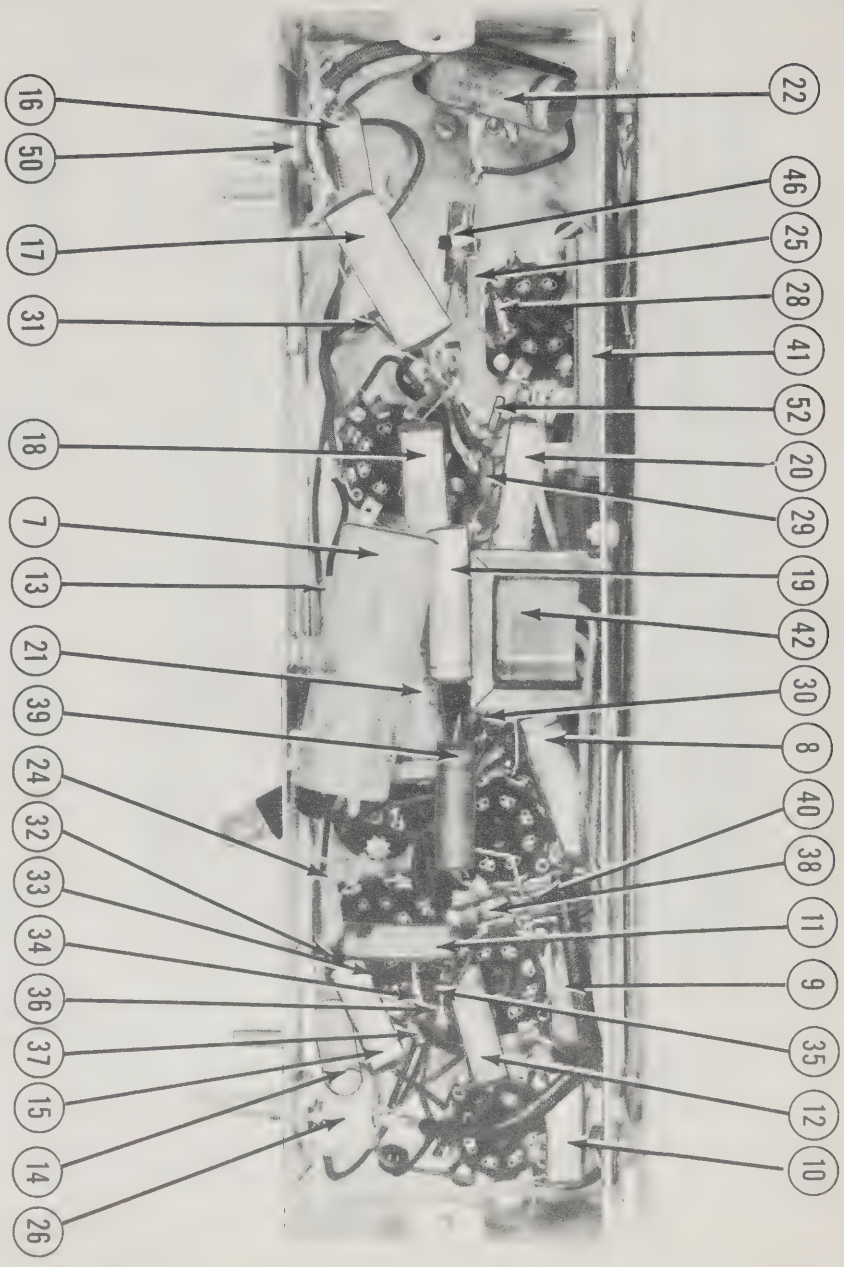
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WESTING. PART No.		
49	Bayonet	6-8	0.15	Brown	No. 47		Type 47

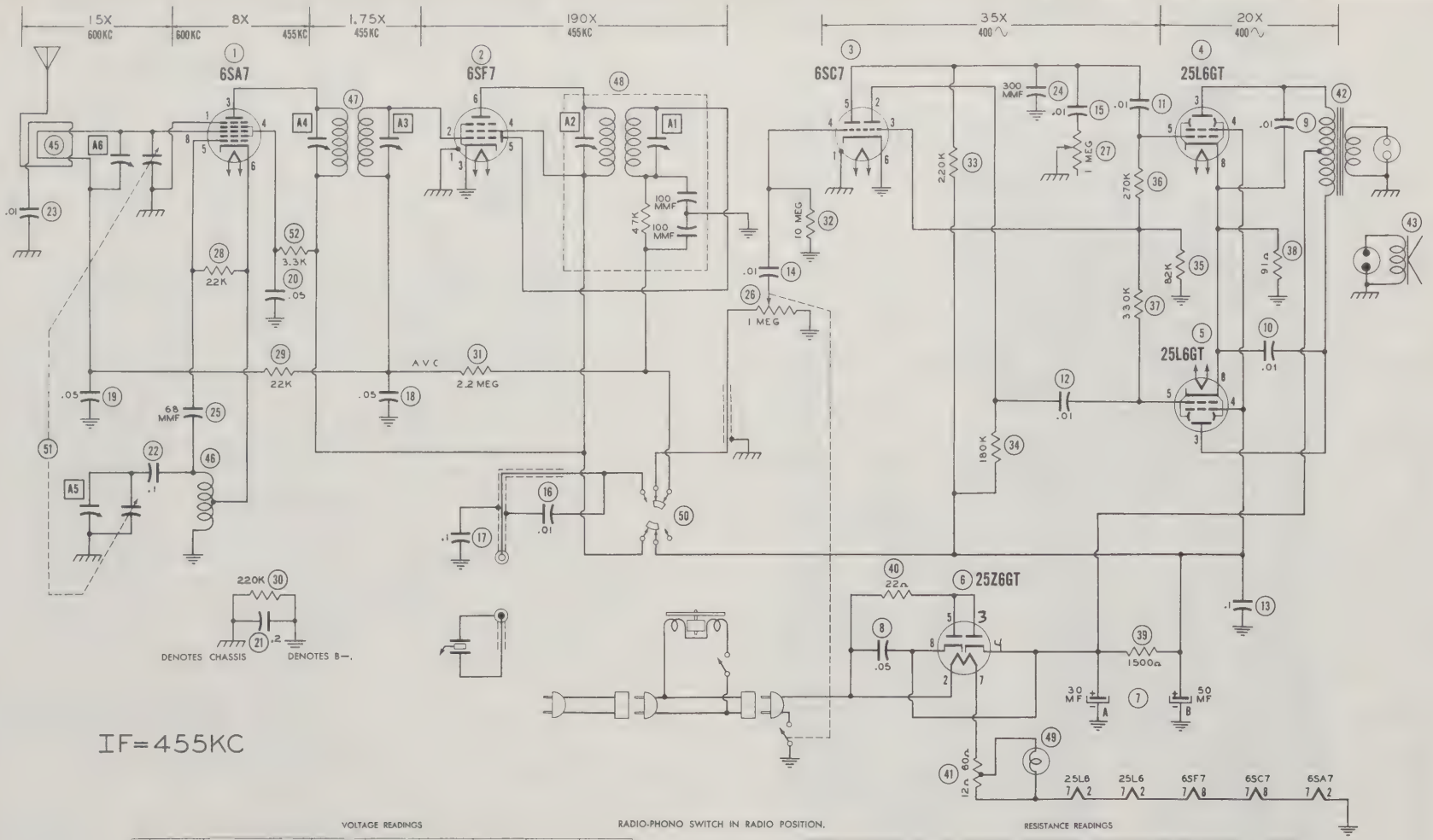
MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
50	Switch	V-3301	Radio-Phono
51	2 Gang Var. Cap.	V-3535	(12-496MMF, 21-109MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	0V.	80VDC	57VDC	-7.5VDC§	0V.	6.4VAC	-.9VDC
2	6SF7	0V.	-.6VDC	0V.	80VDC	-.4VDC	80VDC	19VAC	12.5VAC
3	6SC7	0V.	27VDC	-.4VDC	-.4VDC	44VDC	0V.	12.5VAC	6.4VAC
4	25L6GT	0V.	46VAC	117VDC	80VDC	-.15VDC	0V.	70VAC	5.5VDC
5	25L6GT	0V.	46VAC	117VDC	80VDC	-.15VDC	0V.	70VAC	5.5VDC
6	25Z6GT	0V.	117VAC	115VAC	120VDC	115VAC	0V.	91VAC	120VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	220KΩ	0Ω	100KΩ	103KΩ	22KΩ	1Ω	5Ω	3.3 Meg.
2	6SF7	220KΩ	3.3 Meg.	0Ω	100KΩ	1 Meg.	100KΩ	14Ω	9Ω
3	6SC7	220KΩ	280KΩ	80KΩ	10 Meg.	370KΩ	0Ω	9Ω	5Ω
4	25L6GT	INF.	30Ω	100KΩ	100KΩ	380KΩ	0Ω	48Ω	91Ω
5	25L6GT	INF.	14Ω	100KΩ	100KΩ	44 KΩ	1 Meg.	30Ω	91Ω
6	25Z6GT	INF.	110Ω	130Ω	100KΩ	130Ω	INF.	90Ω	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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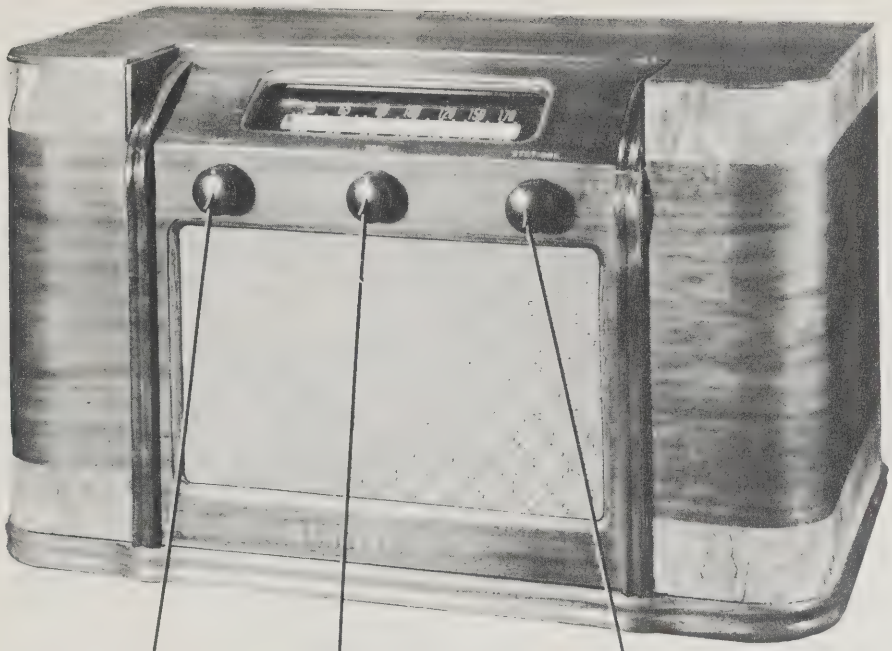
485-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WESTINGHOUSE MODEL H-178
(Ch. V-2123) BATTERY OPERATED



WESTINGHOUSE MODEL H-178
(Ch. V-2123) BATTERY OPERATED

WESTINGHOUSE MODEL H-178

TRADE NAME	Westinghouse, Model H-178 (Ch. V-2123)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pa.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1LA6 Converter, 3E6 IF Amp., 1LD5 Det.-AVC-AF, (2) 1LB4 Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	300MA @ 1.5 Volts DC and 14MA @ 90 Volts DC
TUNING RANGE—BROADCAST	550-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully open and set pointer to last reference mark at high freq. end of dial.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 3E6. Low side to chassis.	455KC	Tuning cap. fully closed.	Across voice coil	A1, A2	Adjust for maximum output.
2	.1 MFD.	High side to Pin 6 (grid) 1LA6. Low side to chassis.	"	"	"	A3, A4	" " " "
3	200MMF.	High side to lug on ant. coil (34) to which ext. ant. lead is attached. Low side to chassis.	"	"	"	A1, A2, A3, A4.	Repeat IF adjustments for maximum output.
4	200MMF.	"	1700KC	1700KC	"	A5	Adjust for maximum output.
5	200MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 3/48-#485-26 SET #35-FOLDER #26

PARTS LIST AND DESCRIPTIONS

WESTINGHOUSE MODEL H-178
(CH. V-2123) BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTING. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1LA6	1LA6	7AK	
2	IF Amp.	3S6	3S6	7CJ	
3	Det.-AVC-AF	1LD5	1LD5	6AX	
4	Power Output	1LB4	1LB4	6AD	
5	" "	1LB4	1LB4	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTING-HOUSE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	10	150	V-3861	M-10-150	UT-121	PRS150-12	PR1S15	Filter
7	.1	200	RCP10W2104A	S-2-1	TC-1	484-.1	DT2P1	RF Bypass Pwr. Supply
8	.001	600	RCP10W6102A	S-6-001	TC-21	C-4-001	DT6D1	Output Plate Bypass
9	.01	400	RCP10W4103A	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.1	200	RCP10W2104A	S-2-1	TC-1	484-.1	DT2P1	AF Screen Bypass
11	.002	600	RCP10W6.2A	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
12	.001	600	RCP10W610A	S-6-001	TC-21	684-001	DT6D1	Tone Comp.
13	.01	400	RCP10W4103A	S-4-01	TC-11	484-01	DT4S1	Conv. Screen Bypass
14	.05	200	RCP10W2503A	S-4-05	TC-15	484-05	DT2S5	AVC Filter
15	47	500	RCM20A470K	MO.5-45	1FM-45	1468-00005	5W5Q5	AF Plate Bypass
16	100	500	RCM20A101M	MO.5-31	1FM-31	1468-0001	5W5T1	Tone Comp.
17	470	500	RCM20A471K	MO.5-35	1FM-35	1468-0005	5W5T5	" "
18	47	500	RCM20A470K	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTING-HOUSE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	½	V-3564	D13-137	M-68-2	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	42	SW-A2	" " " " "

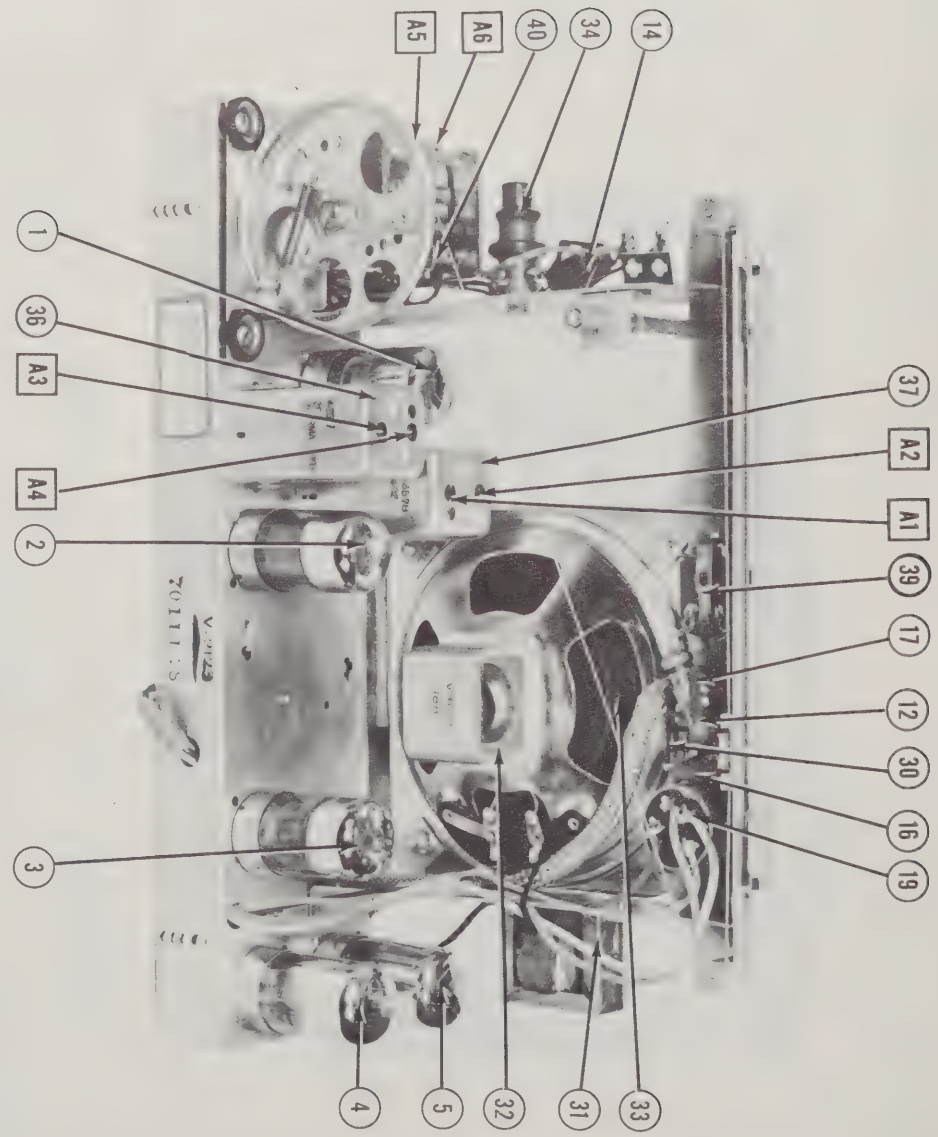
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	220KΩ	½	RC10AE224M	BTS-220K	Red-Red-Yl. Oscillator Grid
21	56KΩ	½	RC10AE563M	BTS-56K	Grn.-Blue-Or. Converter Screen Dropping
22	680Ω	½		BTS-680	Blue-Gray-Br. Bias
23	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. " "
25	10 Meg.	½	RC10AE106M	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. AF Screen Dropping
27	330KΩ	½	RC10AE334M	BTS-330K	Or.-Or.-Yl. AF Plate Load
28	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. Feedback
29	1 Meg.	½	RC10AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
30	100	½	RC10AE101M	BW-½-100	Br.-Blk.-Br. Series Volume Control

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: WESTING. PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
31	5000Ω	3.4Ω	310Ω	.5Ω	V-A176	A-3877	T22846	A-2930	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WESTINGHOUSE PART No.	JENSEN PART No.	QUAM PART No.	
32	FIELD PM	VC IMP. 3.4Ω	V-3601	ST-108 Mod. P6-X	52A15	
33	CONE DIA. 5-3/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

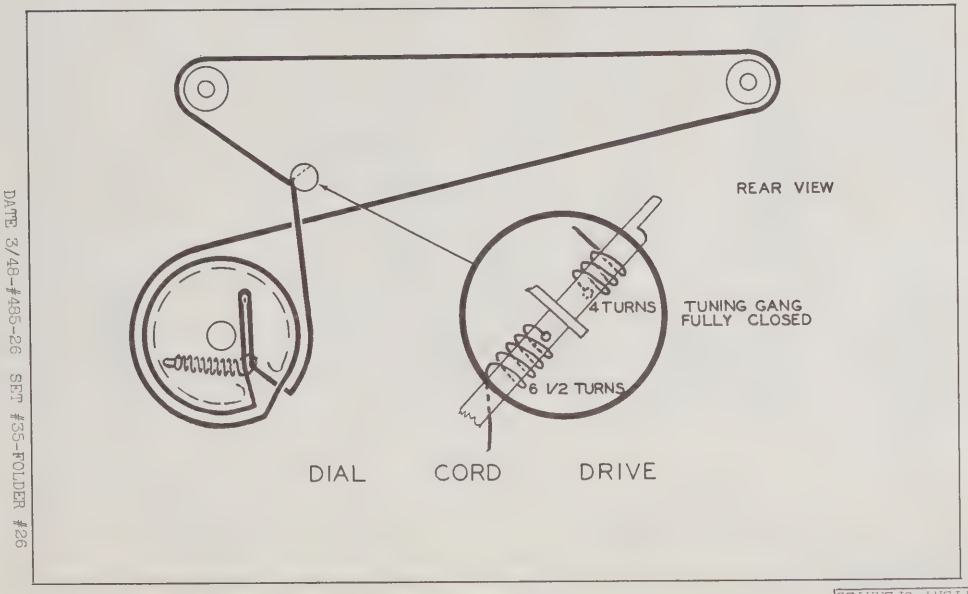
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
34	Ant. Coil	36Ω	2Ω	V-3567		
35	Osc. Coil	3.5Ω	7.5Ω	V-3582	14-1040	
36	Input IF	1Ω	19Ω	V-3577	16-6658	
37	Output IF	1Ω		V-3578	16-6670	

BATTERIES

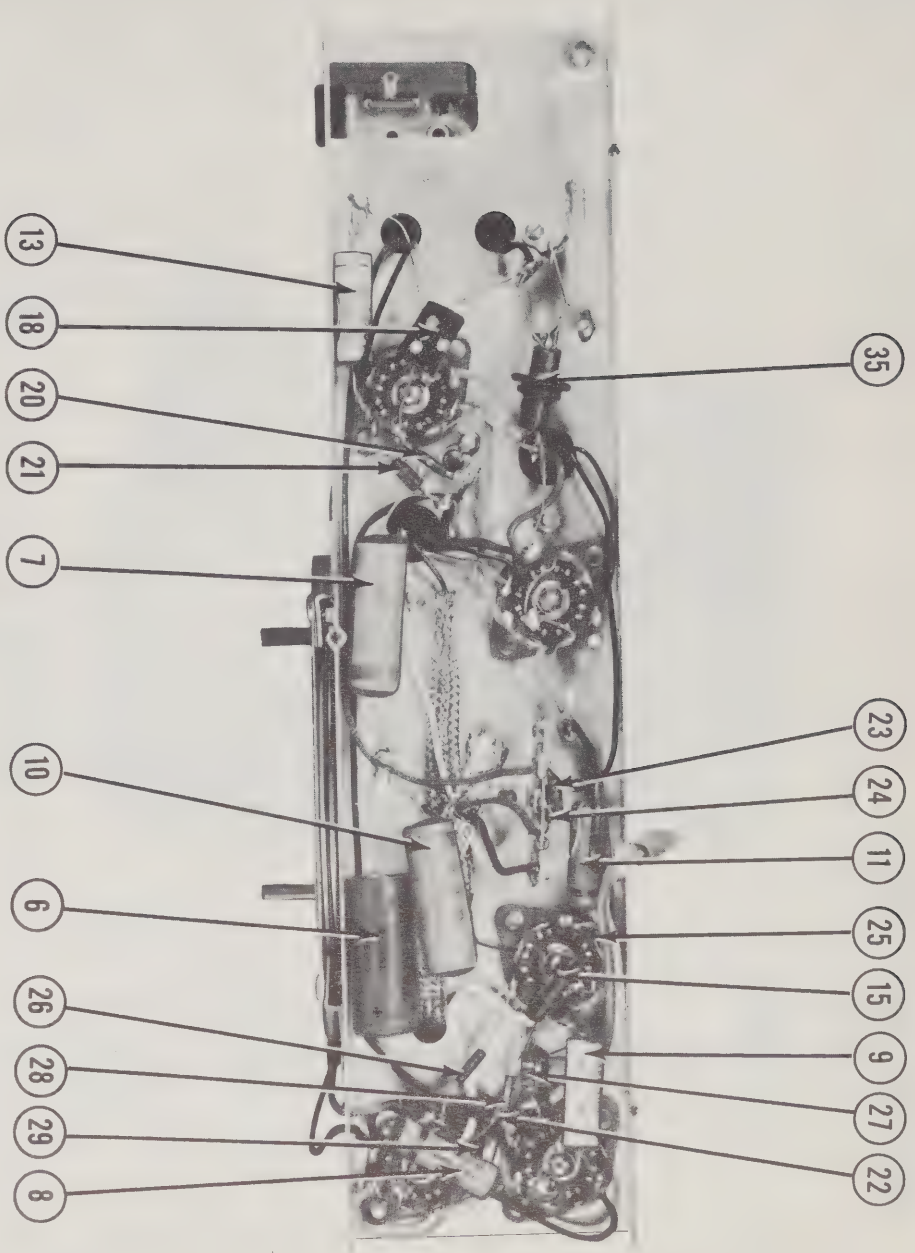
ITEM No.	VOLTAGE	WESTINGHOUSE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
38	1.5V "A" 90V "B"	V-3594			#758			17GD60	

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
39	Switch	V-3563	Tone
40	2 Gang Var. Cap.	V-3569	(28-466MMF, 16-107 MMF)



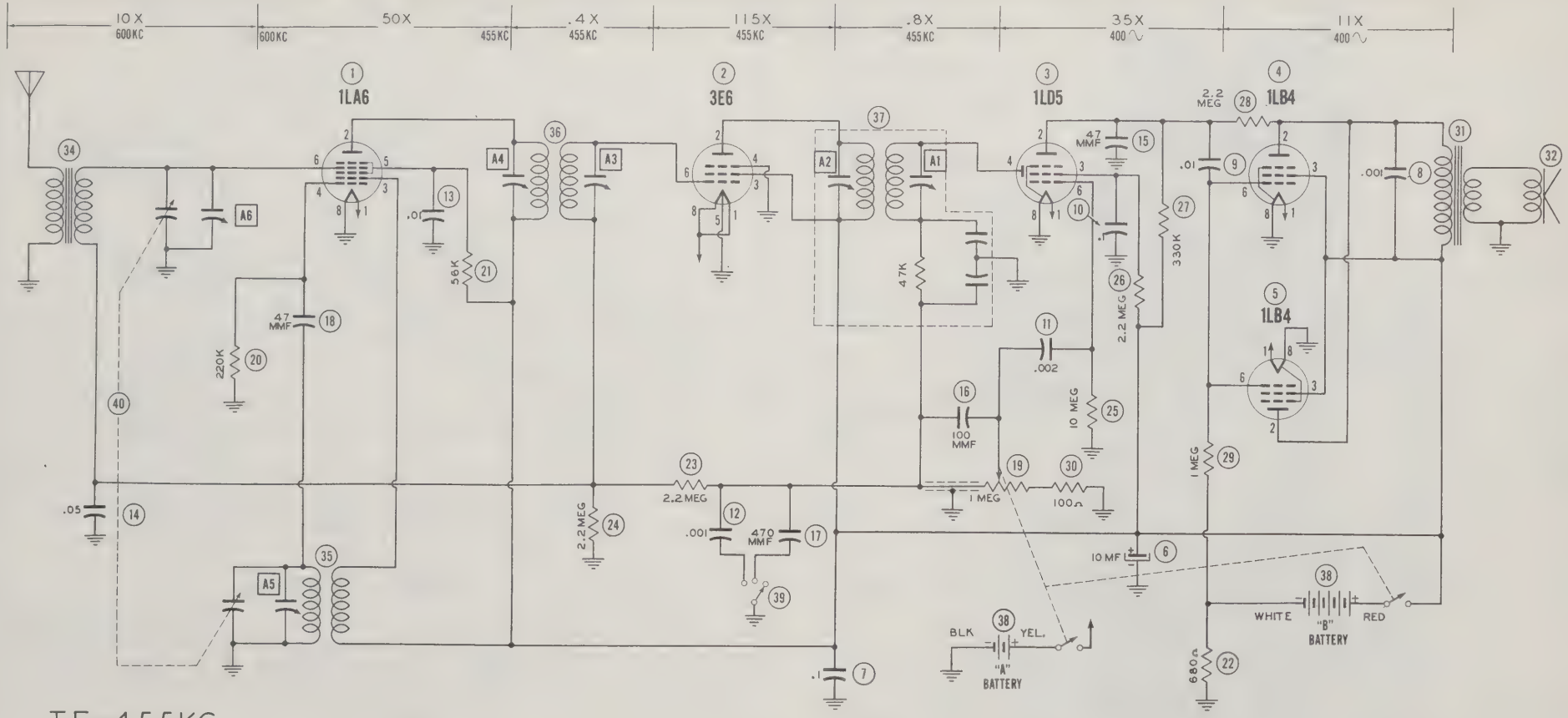
CHASSIS—BOTTOM VIEW



DATE 3/48-#485-26 SET #35-FOLDER #26

WESTINGHOUSE MODEL H-178
(Ch. V-2123) BATTERY OPERATED

WESTINGHOUSE MODEL H-178
(Ch. V-2123) BATTERY OPERATED



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.45VDC	80VDC	80VDC	-14VDC§	42VDC	0V.	0V.	0V
2	3E6	1.45VDC	80VDC	80VDC	0V.	0V.	0V.	0V.	1.45VDC
3	1LD5	1.45VDC	40VDC	25VDC	-.05VDC	0V.	0V.	0V.	0V.
4	1LB4	1.45VDC	78VDC	80VDC	0V.	0V.	-1.6VDC	0V.	0V.
5	1LB4	1.45VDC	78VDC	80VDC	80VDC	-9.5VDC	-1.6VDC	0V.	0V.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	500KΩ	500KΩ	220KΩ	550KΩ	1.5 Meg.	INF.	0Ω
2	3E6	*	500KΩ	500KΩ	0Ω	0Ω	1.5 Meg.	0Ω	*
3	1LD5	*	500KΩ	3 Meg.	1 Meg.	INF.	10 Meg.	INF.	0Ω
4	1LB4	*	500KΩ	500KΩ	0Ω	INF.	1 Meg.	INF.	0Ω
5	1LB4	*	500KΩ	500KΩ	500KΩ	700Ω	1 Meg.	INF.	0Ω

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder
*TRADE MARK

ZENITH MODEL 4G800 (Ch. 4E41) BATTERY-LINE OPERATED

ZENITH MODEL 4G800 (Ch. 4E41) BATTERY-LINE OPERATED

ZENITH MODEL 4G800 (Ch. 4E41) BATTERY-LINE OPERATED

ZENITH MODEL 4G800

TRADE NAME	Zenith, Model 4G800 (Ch. 4E41)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC or 1.5 Volt "A" Supply and 67.5 Volts "B" Supply
RATING	.19 Amp. @ 117 Volts AC or 245 MA @ 1.5 Volts DC and 8.8MA @ 67.5 Volts DC
TUNING RANGE--BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to first reference dot to left of number 55.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1600KC	Tuning cap. fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

FOR FINAL ALIGNMENT OF ANTENNA TUNE IN WEAK STATION ABOUT 1400KC AND ADJUST A6 FOR MAXIMUM VOLUME.

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DATE 3/48-485-27 SET #35-FOLDER #27

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AC	
2	IF Amp.	1N5	1N5	7AB	
3	Det.-AVC-AF	1S5	1S5	7AA	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ZENITH PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	40	150	22-1443				UP7DJ63	Filter
B	20	150						"
C	40	150						"
D	.05	10						Filament Bypass
6	.05	400	22-1660	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.05	400	22-1655	S-4-05	TC-15	484-05	DT2S5	Line Isolation
8	.003	600	22-1668	S-6-003	TC-23	684-003	DT6D3	Output Plate Bypass
9	.005	600	22-1173	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
10	.05	400	22-1655	S-4-05	TC-15	484-05	DT2S5	RF Bypass Pwr. Supply
11	.05	400	22-1655	S-4-05	TC-15	484-05	DT2S5	Filament Bypass
12	100	500	22-1668	MO..-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
13	8000		22-1175	MW.8-25	1FM-28	1468-0075	1D3D8	AF Screen Bypass
14	100		22-1343	MO.8-31	1FM-21	1468-001	1D5D1	Audio Coupling
15	100		22-1660	MO..-31	1FM-31	1468-0001	Sw. Cl	Diode RF Filter
16	100		22-1668	MO..-31	1FM-31	1468-0001	5W5T1	" " "
17	8000		22-1175	MW.8-28	1FM-28	1468-00075	1D3D8	IF Plate Decoupling
18	8000		22-1175	MW.8-28	1FM-28	1468-00075	1D3D8	AVC Filter
19	8000		22-1175	MW.8-28	1FM-28	1468-00075	1D3D8	Conv. Screen Decoup.
20	8000		22-1175	MW.8-28	1FM-28	1468-00075	1D3D8	AVC Filter

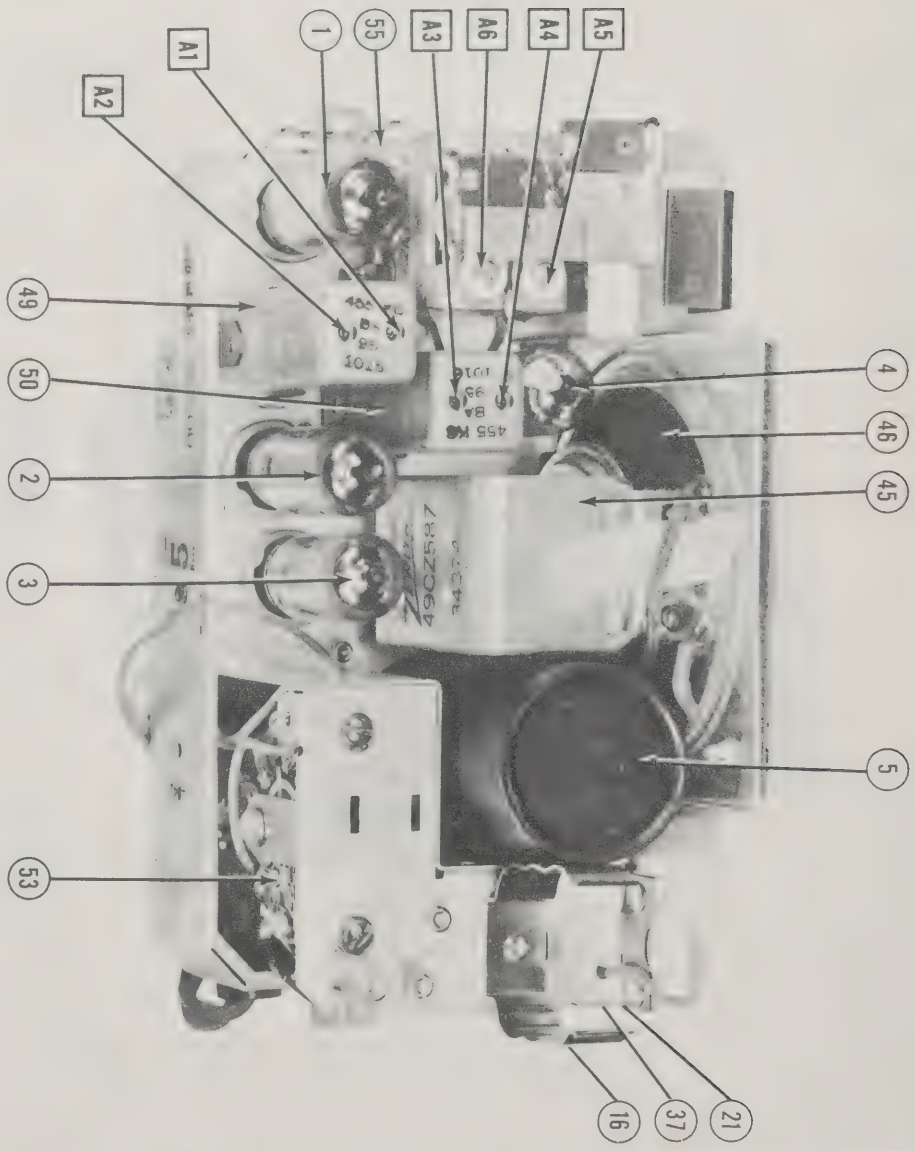
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	
21	1 Meg.	½	63-1553			Volume Control & Sw.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
22	330KΩ	½	63-1891	BTS-330K	Or.-Or.-Yl. Line Isolation
23	100KΩ	½	63-1870	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
24	2200Ω	½	63-1800	BTS-2200	Red-Red-Red Parasitic Suppressor
25	12KΩ	2	63-1831	BTS-12K	Br.-Red-Or. Converter Screen Decoupling
26	10 Meg.	½	63-1954	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
27	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	Yl.-Vi.-Grn. " "
28	15 Meg.	½	63-1961	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
29	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
30	47KΩ	½	63-1856	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
31	15 Meg.	½	63-1961	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
32	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
33	1 Meg.	½	63-1912	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
34	3.3 Meg.	½	63-1933	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
35	300Ω	½	63-1762		Or.-Blk.-Br. Bias-See Note
36	470Ω	½	63-1771	BTS-470	Yl.-Vi.-Br. Filament String
37	1000Ω	½	63-1786	BTS-1000	Br.-Blk.-Red " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
3d	1000Ω	± 5 ± 10	63-1756	BTS-1000	Br.-Blk.-Red Filament Strip
39	8200Ω		63-1824	BTS-8200	Gray-Red-Red Decoupling
40	1000Ω		63-1786	BTS-1000	Br.-Blk.-Red IF Plate Decoupling
41A	1050Ω	2.5	63-1647	AB-1000	Filament Dropping
B	1050Ω			AB-1000	" "
42	1200Ω			BTS-1200	Br.-Red-Red-Filter
43	91Ω	2	63-1564	BW-2-100	White-Br.-Blk. Surge Limiter
56	2200Ω	1		BTA-2200	Red-Red-Red Filament Dropping

Note-Replacement for this Item should have ± 5% tolerance.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
44	12000Ω	3.8Ω	620Ω	.5Ω	95-1014			A-2099	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
45	PM	3.2Ω	49-567		3A07	
	CONE DIA.	VC DIA.				
46	3-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
47	Loop Ant.		1.2Ω	S-13786		
48	Osc. Coil	2.2Ω	7.2Ω	S-13774		
49	Input IF	15Ω	15Ω	95-1015	16-6678	
50	Output IF	15Ω	15Ω	95-1016	16-6678	

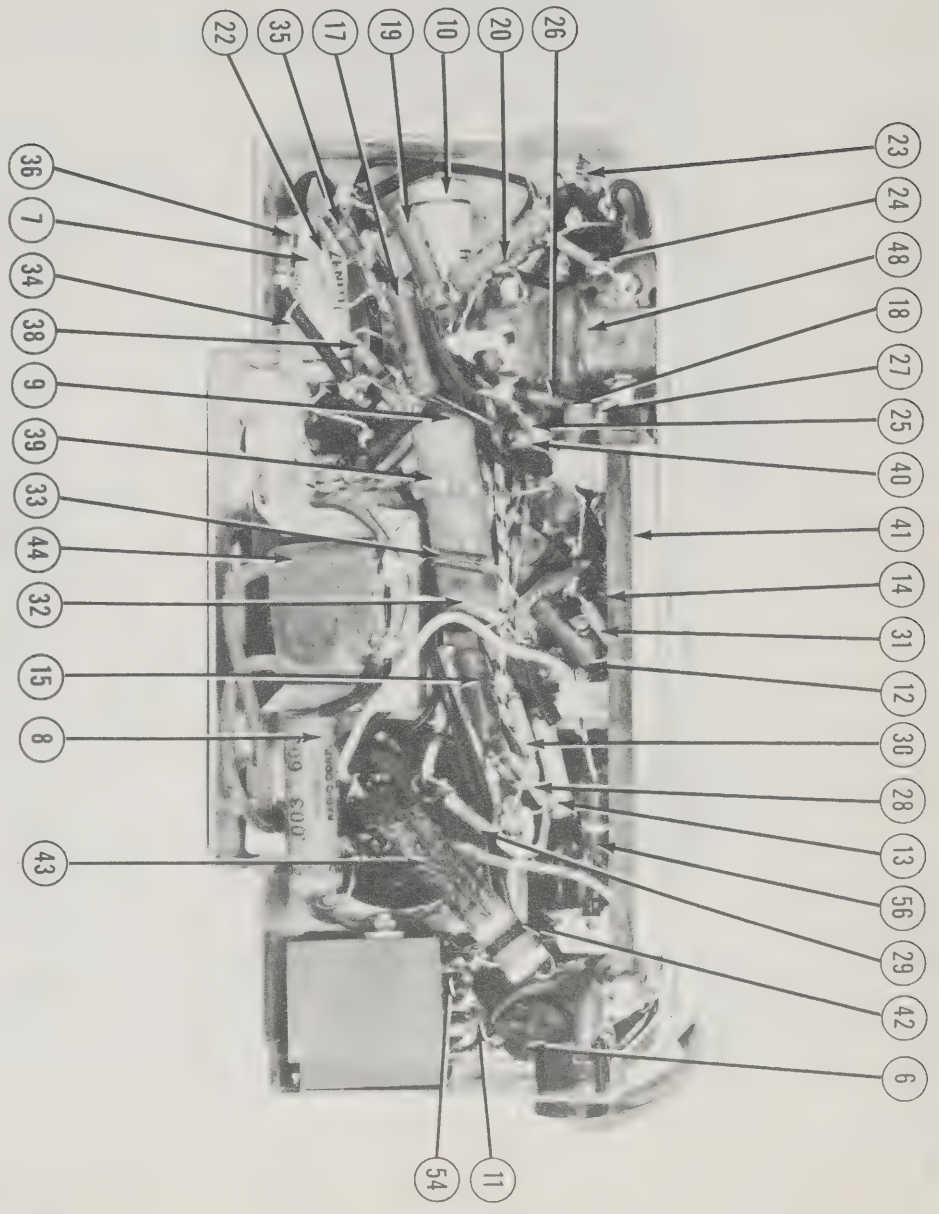
BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
51A	1.5V "A"	Z4NL	#950			#2LR			2 Used in parallel
B		Z3N1							
52	67.5V "B"	Z45		#467			#XX45		

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
53	Switch	85-400	AC-DC-Batt.
54	Rectifier	21[illegible]-2	Sel[illegible]um (S12-4 Alternate)
55	2 Gang Var. Cap.	22-1457	(17-343MMF, 14-108MMF)
	Dial Pointer	[illegible]-2[illegible]	
	Knob	46-684	Tuning
	"	46-696	Volume

CHASSIS—BOTTOM VIEW



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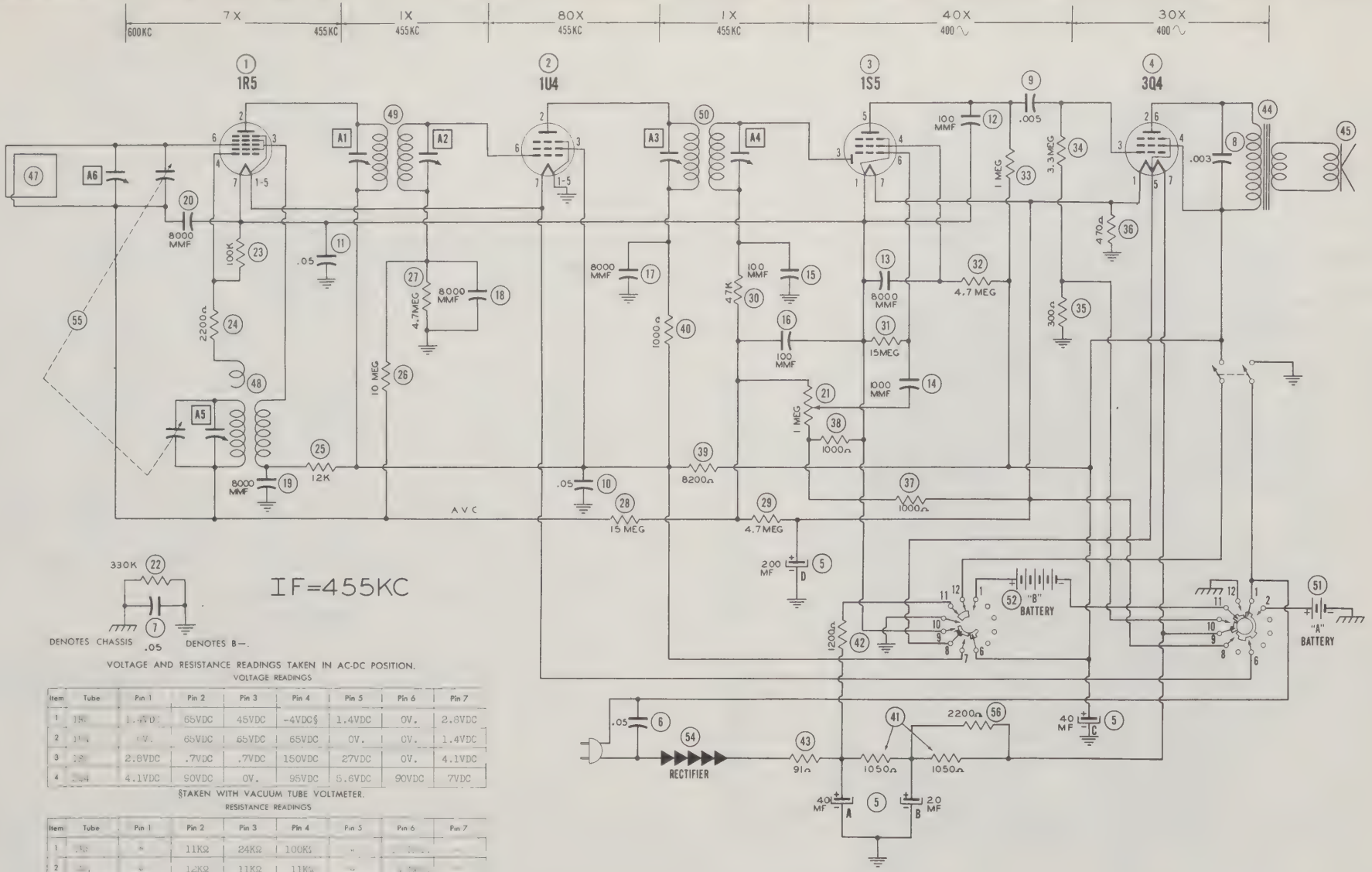
SET #35-FOLDER #27



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	1.4VDC	65VDC	45VDC	-4VDC§	1.4VDC	0V.	2.8VDC
2	1U4	0V.	65VDC	65VDC	65VDC	0V.	0V.	1.4VDC
3	1S5	2.8VDC	.7VDC	.7VDC	150VDC	27VDC	0V.	4.1VDC
4	3Q4	4.1VDC	90VDC	0V.	95VDC	5.6VDC	90VDC	7VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	11KΩ	24KΩ	100KΩ	"	"	"
2	1U4	"	12KΩ	11KΩ	11KΩ	"	"	"
3	1S5	*	1 Meg.	1 Meg.	5 Meg.	1 Meg.	15 Meg.	"
4	3Q4	*	4KΩ	3.4 Meg.	3KΩ	*	4KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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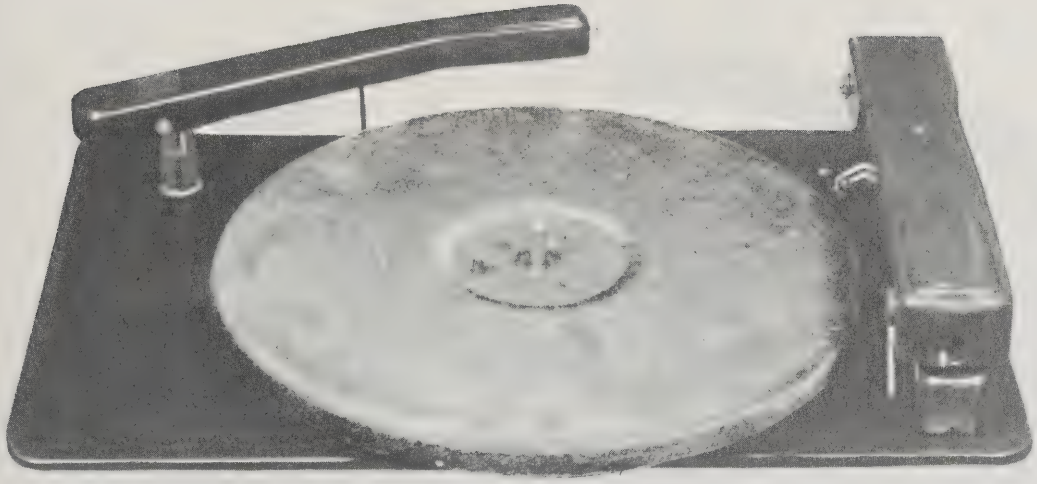
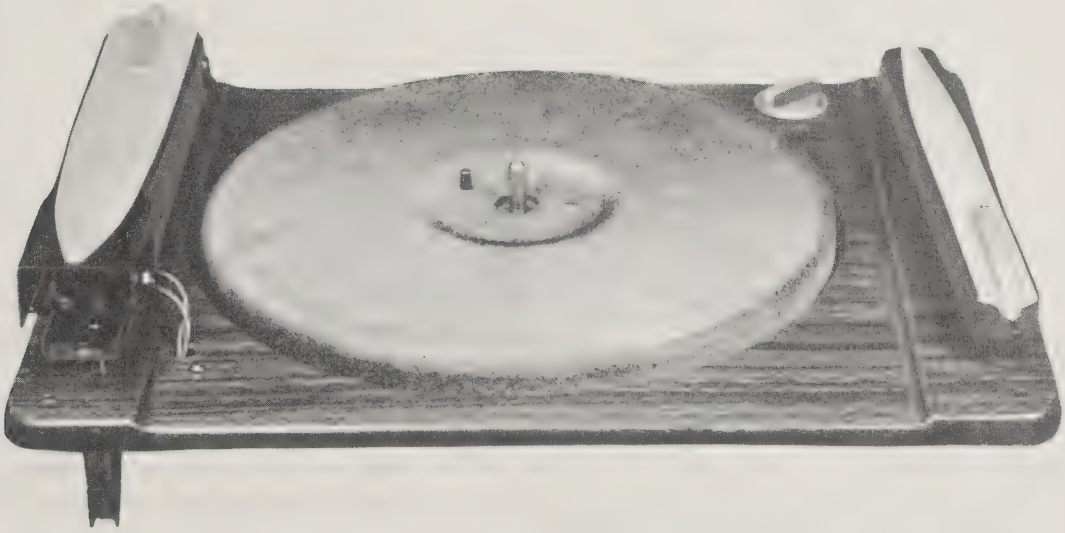
485-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reacing is impractical. AVC is made inoperative by shorting AVC to Pin #1 of 3Q4.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW GI-R70



TOP VIEW GI-R90

GENERAL INFORMATION

The recorder mechanism in these models—GI-R70 and GI-R90—is designed to make home-type recordings on the standard cellulose-nitrate or cellulose-acetate coated disc of up to 10-inch size.

The GI-R70 is designed to record at 78 R.P.M. The GI-R90 is designed to record at 78 R.P.M. or 33⅓ R.P.M., which is operated by the speed shift knob. Both recorders are provided with pickup arms for playback, which are manually controlled.

Manufactured by THE GENERAL INDUSTRIES COMPANY, Elyria, Ohio

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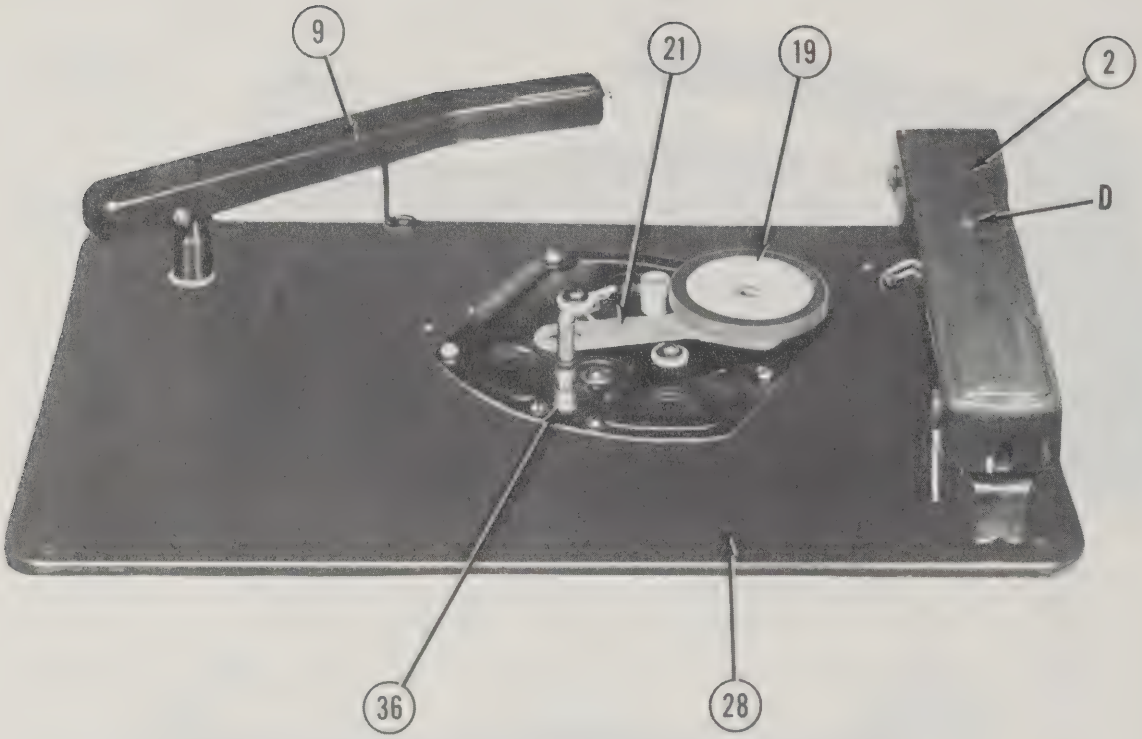
2/48-485-28 set # 35 Folder # 28

GENERAL INDUSTRIES
MODELS GI-R70—R90

GENERAL INDUSTRIES
MODELS GI-R70—R90



TOP VIEW GI-R70 LESS TURNTABLE

LUBRICATION

Frequent oiling of the motor is not necessary; however, a few drops of oil two or three times a year would help to maintain the equipment in good order:

1. Carefully remove the turntable by applying upward pressure to the rim of the turntable.

2. Apply several drops of SAE No. 10 pure mineral oil to the side of the motor shaft, allowing the oil to run down into the upper bearing.

3. Oil the idler wheel bearing, using only one or two drops of oil so that it will not run out on to the rubber rim of the wheel.

4. The lower motor bearing may be lubricated by saturating the felt wick which surrounds the lower end of the motor shaft.

5. Apply two or three drops of oil to recording arm pivot post (35) of the GI-R70, or petroleum jelly to the follower arm post (42) above and below the pivot post bushing, thus working it into the bushing by raising and lowering the recording arm.

In the following writeup, the first number mentioned refers to the GI-R70; the second number refers to GI-R90.

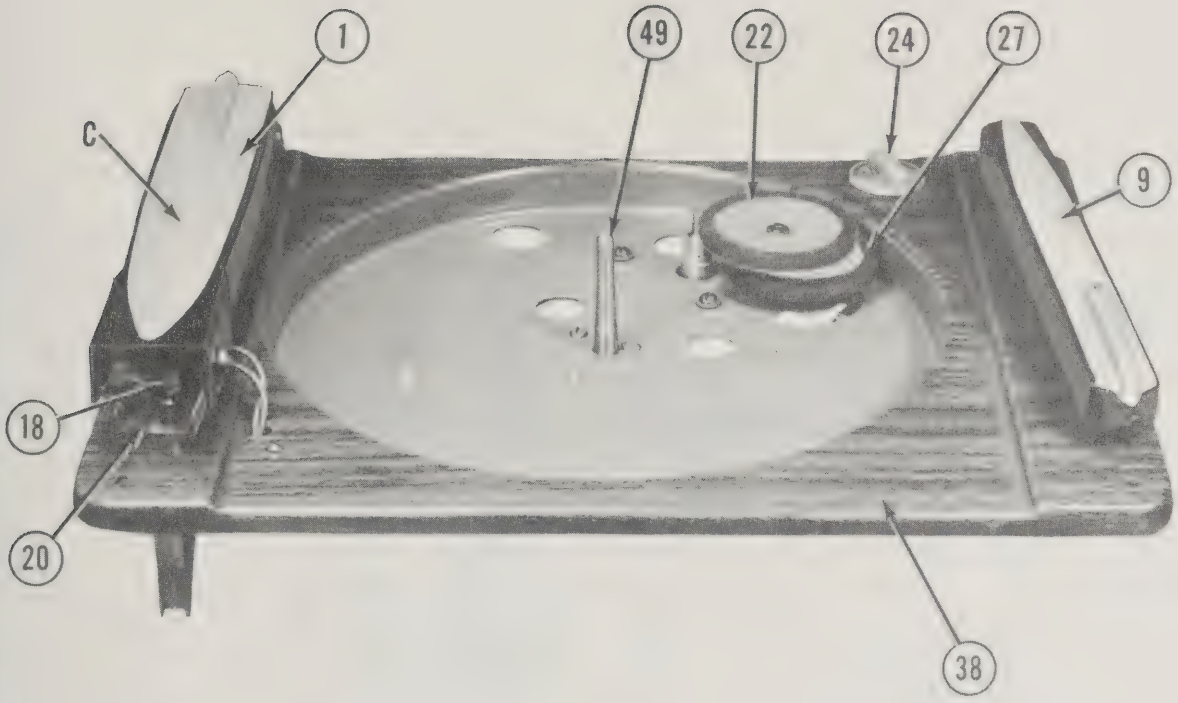
OPERATING INSTRUCTIONS

Place a recording blank on the turntable with the record driving pin of the turntable through the hole provided in the blank.

The recording arm is lifted from its support so that the stylus is about three inches from the surface of the record. The recording arm can now be moved freely and lowered to the desired point on the blank. The knife edge of the follower arm (35) of the GI-R70 and (42) of the GI-R90 then is automatically brought into place in contact with the feed screw (43) of the R70 and (65) of the R90.

LEVELING OF RECORDER

To obtain the best operation from the recorder, the instrument should be placed so that the turntable is level in order for the cutting head to be correctly balanced in its mounting.



TOP VIEW GI-R90 LESS TURNTABLE

ADJUSTMENTS

1—Follower Arm Tension Adjustment

The follower arm tension adjusting screw (42) of the R70 and (45) of the R90 is provided for this purpose. Clockwise rotation reduces pressure of the knife edge against the feed screws (43) and (65), while counterclockwise rotation increases pressure. Normal, full pressure is desirable, but if this is sufficient to cause uneven turntable speed, it must be reduced. Too low pressure will result in uneven groove spacing.

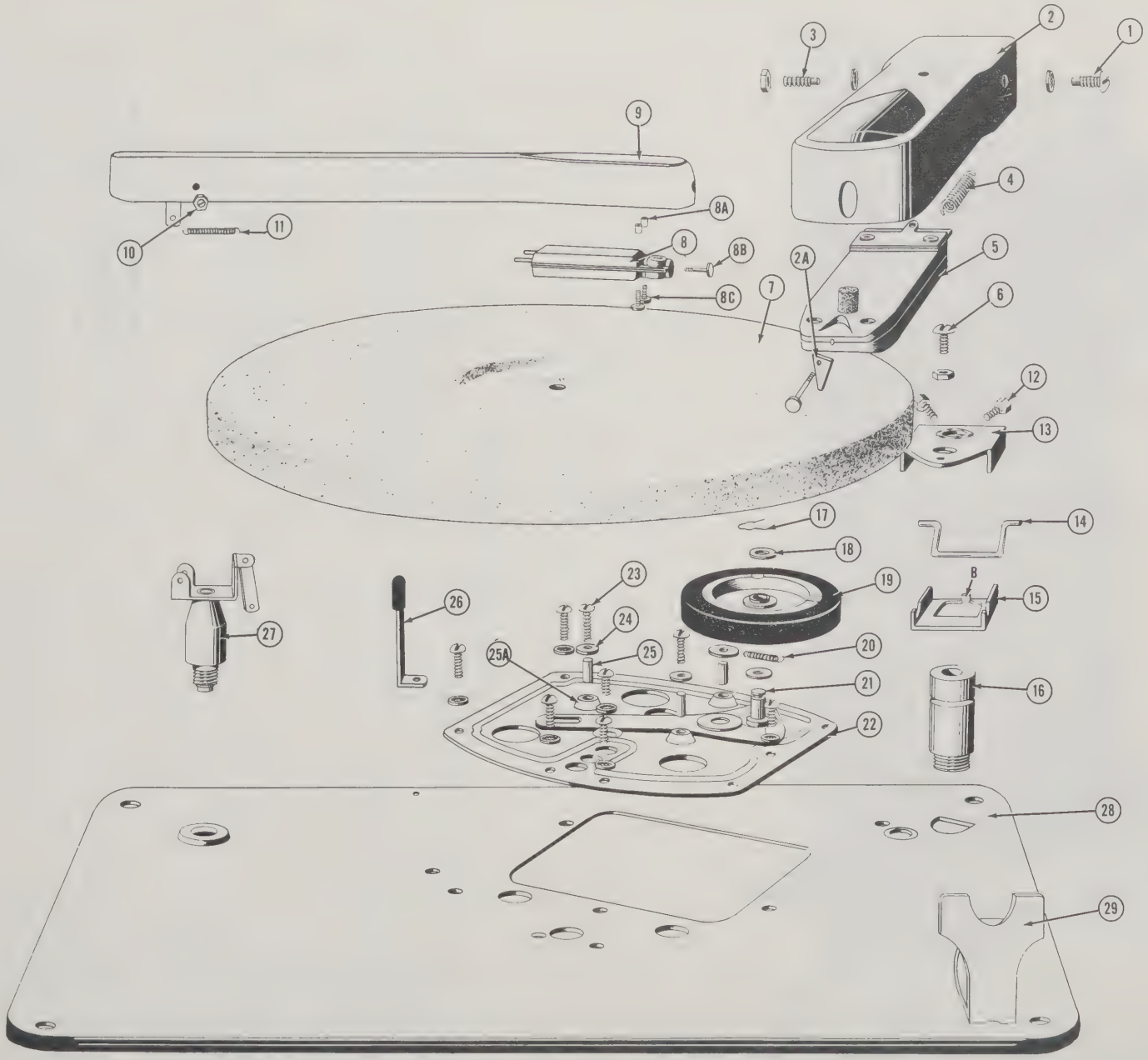
Normal adjustment is as follows. With the recording arm in the lowered position, and the knife edge engaged in the feed screw, the adjusting screws (42) and (45) should just barely touch the spring blade of the knife edge at any point in the length of the feed screw.

The knife edge should usually start to engage the feed screw when the nose of the recorder arm is approximately two inches above the turntable. When raised higher than this, the arm may be freely moved in its horizontal path without interference from the feed screw.

2—Horizontal Movement of the Recorder Arm

The point of maximum outward travel of the recorder arm is limited by the stop (B) on the rear of the straddle plate (15), (20) against the flat surface of the post bushing (16), (37). The relation of the recorder arm to the follower arm may be changed by loosening the two hex head set screws at the rear of the saddle plate (13), (17).

A stop (46), (68) is provided to prevent the follower arm and recorder arm from swinging too far toward the turntable shaft. Normal adjustment is such that the knife edge of the follower engages the feed screw on the start of a 10-inch recording blank. The stop (46), (68) is set to prevent the stylus from cutting less than a three-inch circle. If the recorder arm is not lifted from the record after this stop is reached, the spring-leaf mounting of the knife edge allows it to slip on the thread of the feed screw to prevent jamming. However, this is not recommended as a usual practice since the feed screw will wear readily at this point.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4
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6
7
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8A
8B
8C
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16
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21
22
23
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25A
26
27
28
29
2A
B

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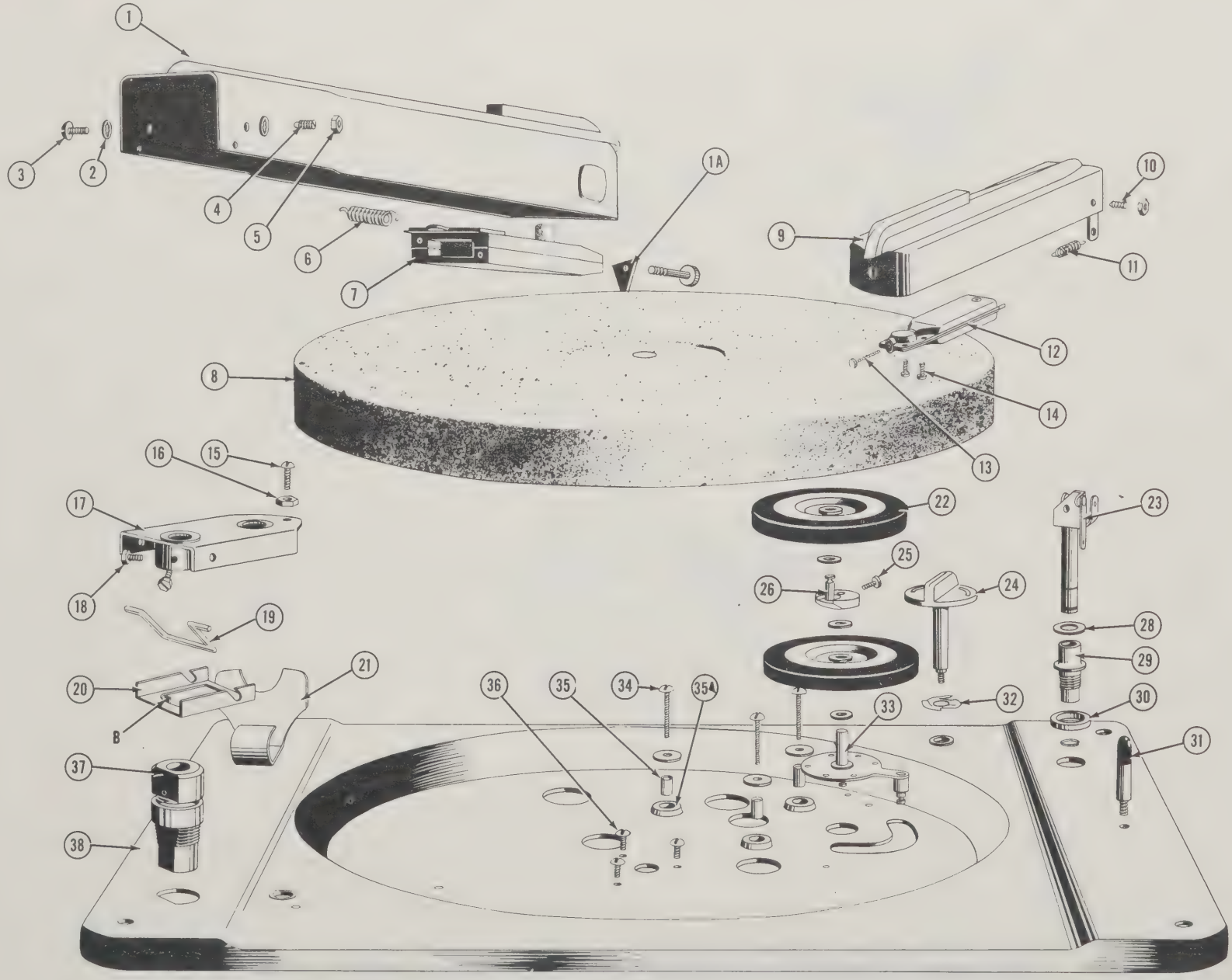
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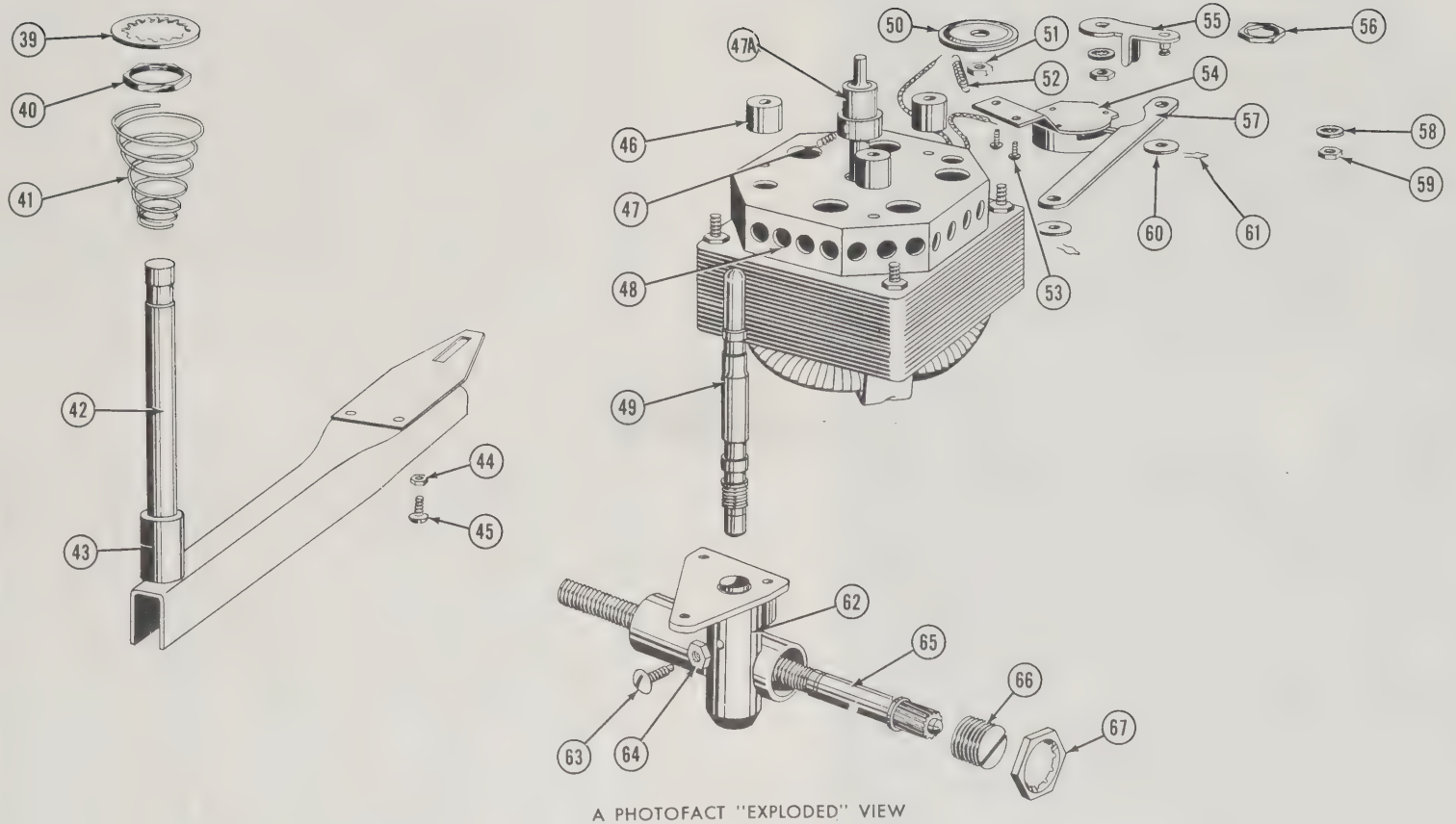

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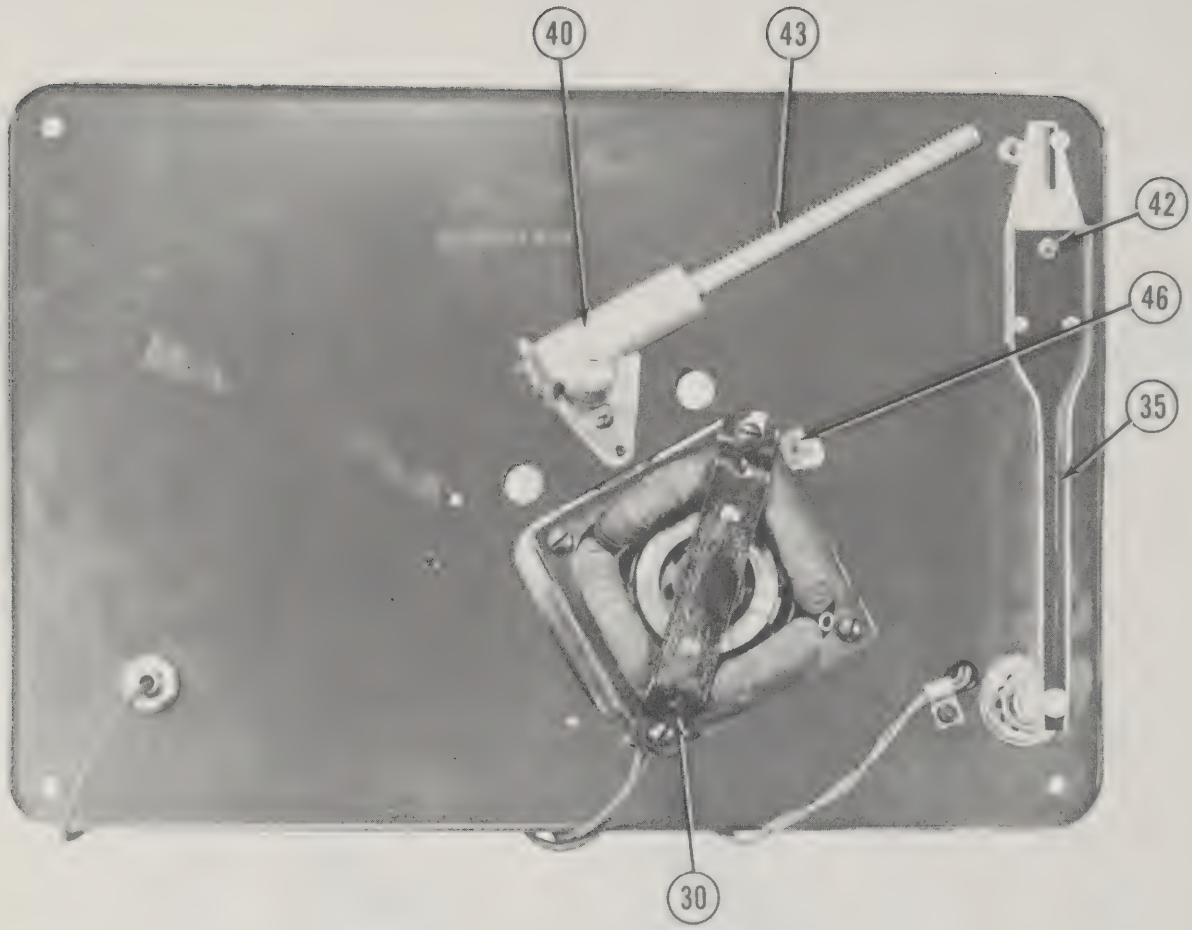


BOTTOM VIEW GI-R70

ADJUSTMENTS—*Continued*

3—Feed Screw Adjustment

An adjustment screw (44), (66) is provided to take up end play in the feed screw. Correct adjustment allows the screw to turn freely without end play; however, too tight an adjustment loads the motor excessively and causes uneven turntable speeds. Too loose an adjustment causes uneven groove spacing.

4—Stylus Angle Adjustment

The angle between the cutting face of the stylus and the face of the recording blank is adjusted by means of the adjusting screw (6), (15). When this angle is greater than 90° (as measured on the side of the stylus toward the body of the arm), it is said to "lead"; when less than 90°, it is said to "lag."

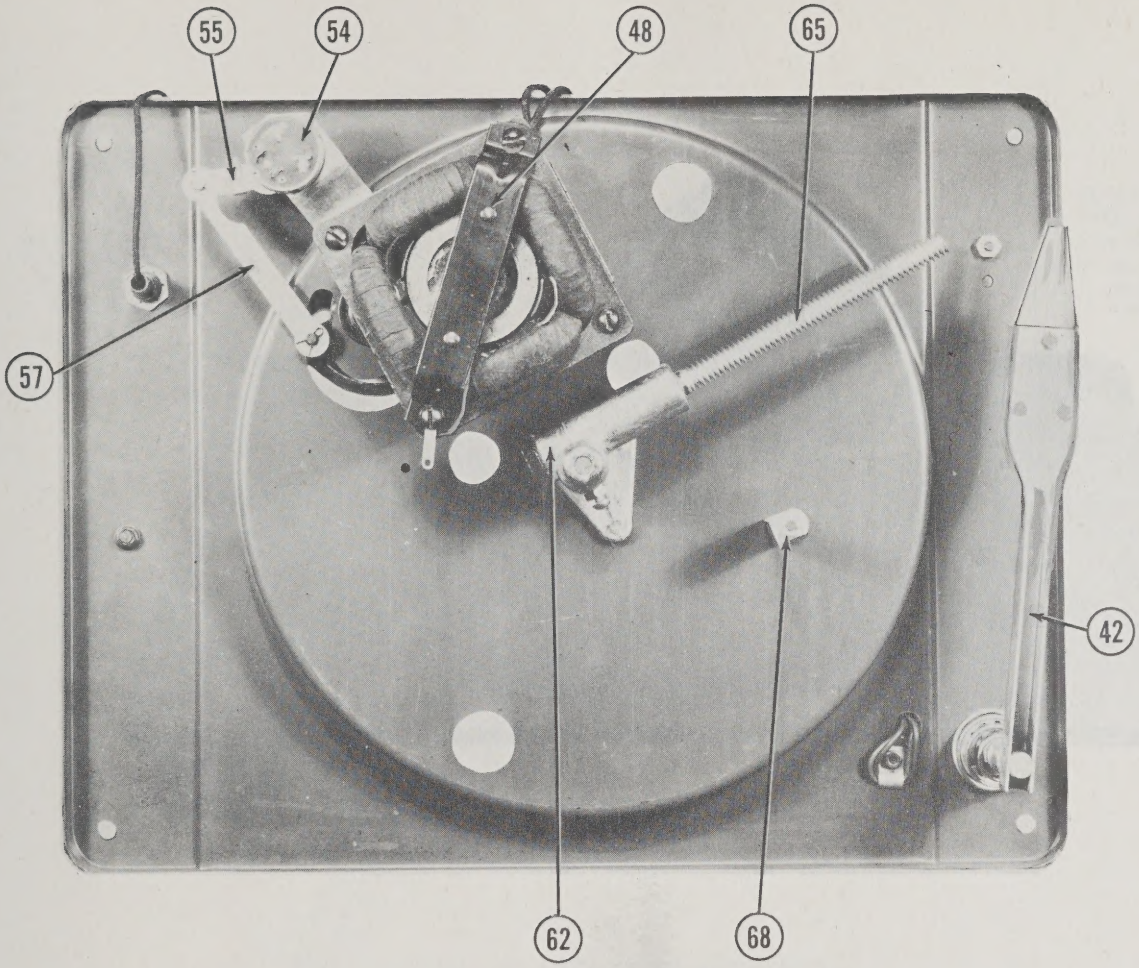
The stylus angle is controlled by the length of the stylus and the distance from the top of the recording blank to the recording arm. The stylus should always be inserted in the stylus chuck as far as it will go; however, to change the stylus angle, the recording arm should be raised or lowered which is adjusted by screw (6), (15). Raising the recording arm decreases the lag, and lowering the recording arm increases the lag.

Proper adjustment is between vertical and 5° lagging. Steel styli usually operate best near 5° limit, while the sapphire styli are generally workable over the entire range. Stellite styli are most satisfactory close to the vertical. The best adjustment is that which gives the quietest cut and plays back with the least surface noise.

5—Depth of Cut Adjustment

This adjustment is accomplished by the depth of cut adjusting screw (D), (C). Turning this screw clockwise increases the depth of the cut. Proper adjustment is such that the grooves and lands (raised portions between grooves) are of the same width. Too wide a groove will cut into adjacent grooves or cause sudden variations in turntable speed, while too narrow a groove will permit the playback needle to jump grooves.

The depth of cut may vary for a given setting between recording blanks and between styli. Changing the angle of the stylus will also affect the depth of cut.



BOTTOM VIEW GI-R90

RECORDING STYLI OR NEEDLES

This device will successfully use only short shank styli or those with an overall length ranging from 9/16" to not more than 5/8". They must have the cutting face parallel to the axis of the shank. Hooked or bent types cannot be used, nor can those with an overall length of more than 5/8". The stylus must have a locating flat on the shank. The proper position of the stylus is with its shank inserted as far as possible in its chuck and with the stylus set screw against its flat. The thread cut from the record disc should throw to the center of the record. If it does not, the stylus is not properly positioned and the clamping screw must be loosened and the stylus reseated.

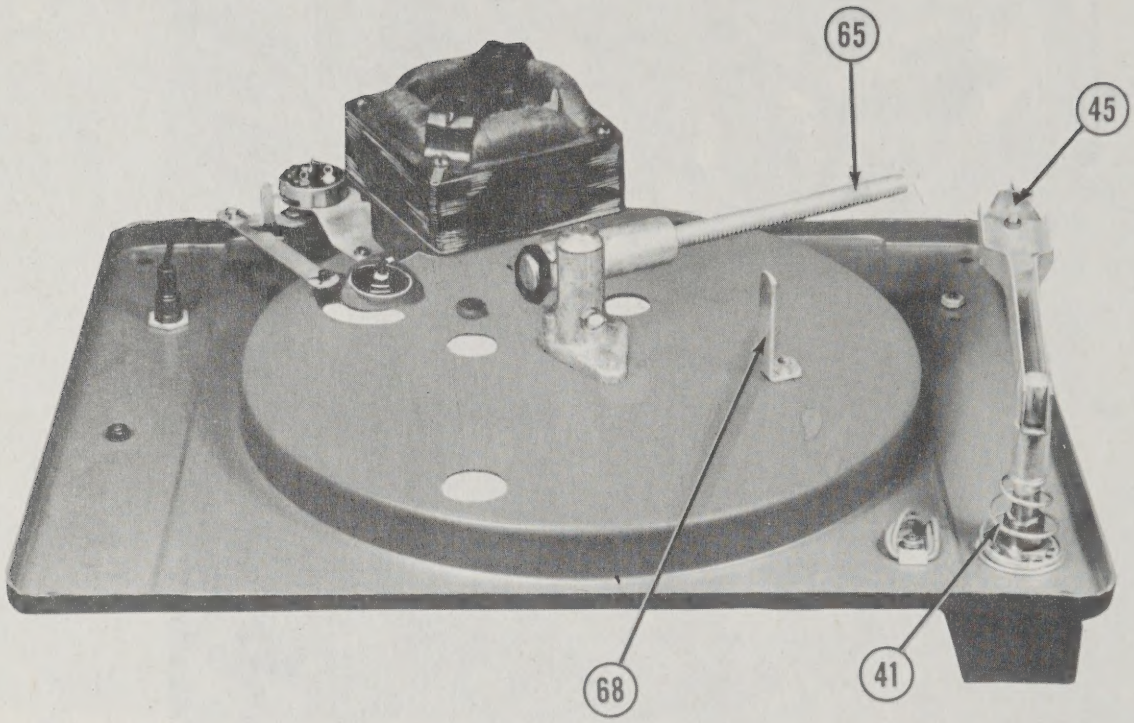
Since the stylus shank is of hardened steel, the stylus may loosen in the chuck during recording. The clamping screw should be tightened with the fingers (never with pliers) after each recording.

The stylus should never be dropped or lowered roughly to the surface of the disc, nor should it be allowed to stand on the disc when the turntable is stationary, since the stylus will be damaged.

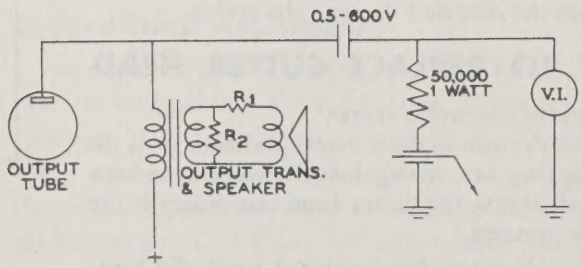
A cork bumper is glued to the top of the cutting head to prevent damage from striking the arm if roughly handled. If the cutting head is replaced, it is important that this bumper be glued to the new cutter. Under no circumstances should this bumper strike the arm during recording as it will drive the stylus into the disc and damage the stylus.

HOW TO REPLACE CUTTER HEAD

1. Remove the stylus screw.
2. With the arm in the vertical position, press the balance spring (4), (6) against the top of the arm, which will throw the cutter head out where it can be firmly grasped.
3. Pull the cutter head upward until the knife edge at the back of the cutter clears its seat in the arm.
4. Unhook the balance spring from the cutter head.
5. It will now be noticed that a cork bumper is glued to the top of the cutter head. This bumper is put there to prevent the stylus screw from being bent if the recorder arm is roughly handled. Remove this cork from the old head and glue it to the new head in precisely the same location as before.
6. Hook the balance spring to the new cutter head and extend the spring sufficiently so that the cutter head knife can be placed in its seat in the arm.
7. Replace stylus screw.
8. Thread the cutter leads through the arm, the arm platform, the base plate, and the lead clamp on the underside of the base plate, and arrange them exactly as before.



SIDE VIEW BOTTOM GI-490



OUTPUT TRANSFORMER AND VOICE COIL IMPEDANCE IN OHMS	R_1 OHMS	R_2 OHMS	DECIBELS ATTENUATION
3.2 3.2	5.5 10	5.5 4.5	8.5 12.0
6.0 6.0	10 15	10 8	8.5 11.0
8.0 8.0	11 20	14 11	7.5 11.0

FIG. B—CRYSTAL CUTTER

CRYSTAL CUTTING HEAD

A suitable connection diagram is shown in Figure B for connecting the crystal cutting head to a radio receiver. All leads should be kept as short as possible and away from other leads.

A volume indicator is necessary to prevent cutting too heavily. The "V.I.," shown in the above diagram, is a rectifier type AC voltmeter, 1,000 ohms per volt, 0-150 volt scale, which is suggested as a volume indicator. For normal recording the voltage peaks should be about 100 volts. The 50,000-ohm resistor, in series with the cutter, will provide an approximation of the standard commercial record. If it is desired to emphasize high frequencies, the 50,000-ohm resistor should be shunted with a condenser of from .001 to .01 mfd. To emphasize low frequencies, the series resistor may be increased up to 250,000 ohms.

It should be remembered that temperatures in excess of 120 F., voltages in excess of 350 volts RMS, or DC voltages will damage the crystal.

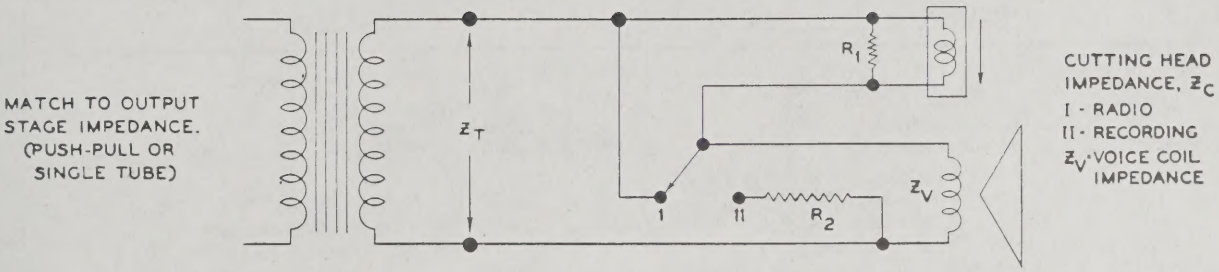


FIG. A—MAGNETIC CUTTER

TYPICAL VALUES OF COMPONENTS

Z_C OHMS	R_1 OHMS	Z_V OHMS	R_2 OHMS	Z_T OHMS	MONITORING SPEAKER LEVEL BELOW RECORDING LEVEL
10	10	3.2*	0.4	3.2	17.0
10	10	4.0	0.5	4.0	16.5
10	10	6.0	1.0	6.0	13.0
10	16	8.0	2.25	8.0	10.0
10	18	10.0	5.50	10.0	5.0

* RMA STANDARD VOICE COIL IMPEDANCE OF SMALL SPEAKERS

MAGNETIC CUTTING HEAD

A suggested circuit for connecting the magnetic type cutting head in the voice coil circuit of a receiver is shown in Figure A. All leads should be kept as short as possible and away from other leads.

To prevent too heavy cutting, a volume indicator should be used. When a medium-speed voltmeter is used for this purpose, the voltage peaks should be about 1 volt for speech and 1.5 volts for music. The resistance of the volume indicator must be considered as a part of R.

PARTS LIST

GI-R70

Ref. No.	Part No.	DESCRIPTION
1	12127	Cutter arm mounting screw
2	12470	Cutter arm complete
2A	11391	Shaving collector
3	12173	Cutter arm mounting screw
4	12125	Cutter head tension spring
5	12126	Astatic X-26 crystal cutter
6	12129	Saddle plate adjusting screw
7	12761	Turntable
8	13622	P-93 Shure crystal
	22418	L-70 Astatic crystal
	13633	L-40 Astatic crystal
8A	13996	Spacing bushing
8B		Needle set screw (furnished with cartridge)
8C	12112	4-40 x 3/8 screw
9	13781	Pickup arm complete
10	16207	Lock nut
	11509	Pickup arm mounting nut and screw
11	13764	Pickup arm tension spring
12	12128	Set screw for pivot saddle bushing
13	12133	Pivot saddle plate
14	12121	Cutter arm lift lever
15	12140	Pivot post straddle plate
16	12108	Pivot post bushing
17	21914	Hairpin washer
18	21844	Fiber washer
19	22076	Rubber drive wheel
20	21994	Drive wheel tension spring
21	22078	Mounting bracket assembly
22	22079	Mounting plate complete
23	6654	8-32 x 9/16 screw
24	13824	Flat washer
25	14584	Motor spacers
25A	14536	Grommets (three)
26	13767	Pickup arm support
27	13778	Pickup arm mounting post complete
28	12481	Base plate
29	12101	Cutter arm holding bracket
30	22165	Motor assembly
31	12153	Internal tooth lock washer
32	1208	Pivot post mounting nut
33	12142	Pivot post return spring
34	12157	Flat washer
35	12107	Follower arm complete
36	22067	Turntable shaft
37	13766	Lock nut
38	7534	Turntable shaft locking screw
39	9569	Lock nut for screw No. 7534
40	21928	Turntable shaft and lead screw housing
41	9934	Nut used with No. 5871 screw
42	5871	Follower arm adjusting screw
43	12902	Lead screw and gear assembly
44	21934	End thrust screw
45	13823	Nut for end thrust screw
46	12158	Follower arm stop

GI-R90

1	13709	Cutter arm complete
1A	11391	Shaving collector
2	7217	Lock washer
3	12127	Cutter arm mounting screw
4	12173	Cutter arm mounting screw
5	12172	Cutter arm mounting screw lock nut
6	12125	Cutter head tension spring
7	12126	Astatic X26 crystal cutter

GI-R90

Ref. No.	Part No.	DESCRIPTION
8	13796	Turntable
9	13706	Pickup arm complete (for L-70 or L-40 Astatic crystal)
10	16207	Pickup arm mounting screw
11	13764	Pickup arm tension spring
12	13622	L-70 Astatic pickup crystal
	13633	L-40 Astatic pickup crystal
	22418	P-93 Shure pickup crystal
13		Needle set screw (furnished with cartridge)
14	12098	4-40 x 3/8 screw
15	12129	Saddle plate adjusting screw
16	9228	Nut used on No. 12129 screw
17	12133	Pivot saddle plate
18	12128	Set screw for pivot saddle bushing
19	12121	Cutter arm lift lever
20	12140	Pivot post straddle plate
21	13711	Cutter arm holding bracket
22	13753	Rubber drive wheel 33⅓ R.P.M. (upper)
23	13777	Pickup arm and shaft assembly
24	14654	Speed shift knob
25	6254	8-32 set screw (dog point)
26	13761	Toggle link and stud assembly
27	22076	Rubber drive wheel (78 R.P.M. lower)
28	13967	Flat w[illegible]sher
29	13737	Pick[illegible]n pivot bushing
30	13544	
31	13731	Pick
32	13699	Spring
33	13757	Idler ar
34	6457	8-32 x 1"
35	13729	Motor spacin
35A	21112	Motor mountin[illegible]ommet
36	5017	8-32 x ¼" housing screw
37	13734	Pivot post bushing
38	14072	Base plate
39	12153	Inner tooth lockwasher
40	1208	Nut for post bushing (37)
41	12142	Pivot post return spring
42	13751	Follower arm complete
43	13732	Bushing
44	9934	Nut used on No. 5871 screw
45	5871	Follower arm adjusting screw
46	13729	Motor mounting bushing
47	20059	Set screw for No. 12922 pulley
47A	12922	Rotor shaft pulley
48	22150	Motor assembly
49	13733	Turntable shaft
50	11728	Turntable drive disc washer
51	21184	10-32 nut
52	11693	Tension spring
53	192	Self-tapping screw
54	13433	Switch and bracket assembly
55	13437	Speed and switch crank
56	13766	Special lock nut
57	13714	Connecting link
58	7217	Spring lockwasher
59	21184	Nut 10-32 for pickup rest pin
60	11587	Flat washer
61	21914	Hairpin clip
62	21928	Turntable shaft and lead screw housing
63	7534	Turntable shaft locking screw
64	9569	Nut used on No. 7534 screw
65	12902	Lead screw and gear assembly
66	21934	End thrust screw
67	13823	Nut for end thrust screw